City of Ramsey
Agenda
Public Works Committee
Tuesday, September 17, 2019
5:30 pm
Lake Itasca Room, 7550 Sunwood Drive NW

1. Call to Order

2. Citizen Input

3. Approve Agenda

4. Approve Minutes

1. Approve the following meeting minutes.
1. Public Works Committee meeting dated July 16, 2019.

5. Committee Business

1. Consider Lowering Speed Limit on Residential Roads

2. Recommend City Council Approval of Funding Program for Variolite Street Reconstruction, Improvement Project #20-01

3. Recommend City Council Approval of Ramsey Town Center 9th Addition Pond Lining Improvements, Improvement Project #19-06

4. Recommend City Council Approval of Germanium Street Drainage Improvements, Improvement Project #19-09

5. Recommend City Council Approval of Hedgehog Street Drainage Improvements, Improvement Project #19-10

6. Recommend City Council Approval of Water Efficiency Grant Application

6. Committee/Staff Input

1. Review Wellhead Protection Plan Part 2 Amendment

2. Staff Updates on Improvement Projects and Items of Interest

3. Review Future Topics Calendar

7. Adjournment

Public Works Committee **4. 1.**

Meeting Date: 09/17/2019
Submitted For: Grant Riemer, Engineering/Public Works
By: MaryJo Warner, Engineering/Public Works

Title:

Approve the following meeting minutes.
1. Public Works Committee meeting dated July 16, 2019.

Purpose/Background:

Purpose: To review and approve meeting minutes.
Background: Attached are the meeting minutes for review.

Timeframe:

5 minutes.

Observations/Alternatives:

n/a

Funding Source:

n/a

Recommendation:

To review and approve meeting minutes dated July 16, 2019.

Action:

Motion to approve meeting minutes dated July 16, 2019.

Attachments

Minutes

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 09:39 AM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:06 PM
Form Started By: MaryJo Warner		Started On: 09/11/2019 11:26 AM
Final Approval Date: 09/12/2019		

PUBLIC WORKS COMMITTEE
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Public Works Committee conducted a regular meeting on Tuesday, July 16, 2019, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Chairperson Mark Kuzma
Councilmember Nadine Heinrich
Councilmember Chris Riley

Also Present: Public Works Superintendent Grant Riemer
City Engineer Bruce Westby
Community Development Director Tim Gladhill

1. CALL TO ORDER

Chairperson Kuzma called the regular meeting of the Public Works Committee to order at 5:30 p.m.

2. CITIZEN INPUT

There was none.

3. APPROVE AGENDA

Motion by Councilmember Riley, seconded by Councilmember Heinrich, to approve the agenda, as presented.

Motion carried. Voting Yes: Chairperson Kuzma, Councilmembers Riley and Heinrich. Voting No: None.

4. APPROVE MINUTES

4.01: Approve June 18, 2019, Meeting Minutes

Motion by Councilmember Riley, seconded by Councilmember Heinrich, to approve the following minutes:

Regular Meeting Minutes dated June 18, 2019

Motion carried. Voting Yes: Chairperson Kuzma, Councilmembers Riley and Heinrich. Voting No: None.

5. COMMITTEE BUSINESS

None.

6. COMMITTEE / STAFF INPUT

6.01: Update on Pavement Maintenance Plan for Ferret Street and 147th Avenue Intersection

City Engineer Westby stated that on July 11, 2017, the City Council adopted Resolution #17-07-170 authorizing the preparation of a Feasibility Report for reconstructing the street in the HY-10 Ramsey subdivision under City Improvement Project No. 18-02. On May 22, 2018, the Development Review Committee (DRC) reviewed the proposed project and provided comments on design alternatives based on the potential for future development of the HY-10 Ramsey subdivision. Given the uncertainties associated with redevelopment, staff felt it would be most cost effective to bring the bituminous pavement up to usable standards, extend utilities and concrete curb and gutter along 147th Avenue only, and not to connect the street to adjacent developments at this time.

City Engineer Westby stated that staff prepared a draft Feasibility Report based on input from the DRC, which included an engineer's opinion of probable project costs of $288,000. The project was proposed to be funded using a combination of special assessments to benefiting properties, street reconstruction bond proceeds, and stormwater utility funds. Nine parcels were identified as receiving special benefit from the improvements. Four of the parcels had permanent structures, and the other five were undeveloped. Several of the parcels were listed for sale, including two City owned parcels.

City Engineer Westby stated that staff originally intended to conduct a public information meeting with benefiting property owners of HY-10 Ramsey while preparing the Feasibility Report to explain the purpose and need for the proposed improvements, the scope of the improvements, estimated costs, the proposed funding program, and propose schedule. However, due to growing uncertainties surrounding the future use of adjacent parcels, staff determined it would be best to prepare a Feasibility Report before scheduling and conducting the public input meeting to help keep discussions focused.

City Engineer Westby noted that on September 13, 2019 staff conducted the public information meeting. None of the benefiting property owners attended the meeting or called in advance to discuss the project. However, after the meeting staff was contacted by two benefiting property owners and both were opposed to reconstructing the streets at that time stating redevelopment was imminent. Since such time, staff has met with the property owners and the general consensus of all is the redevelopment is imminent so streets should not be reconstructed at this time. On October 23, 2018 the City Council adopted Resolution #18-218 accepting the Feasibility Report along with staff's recommendation to shelve the project until such time that it is no longer needed to the adjacent property owners request the streets be repaired.

City Engineer Westby stated that in subsequent discussion between staff and the Public Works Committee, staff received consensus approval from the Committee to reconstruct the pavement

at the intersection of Ferret Street and 147th Avenue in 2019 using in-house resources to ensure that the intersection could continue to safely be used by the public and effectively maintained by the City. He stated that based on recent developments, staff proposed to suspend improving the intersection of Ferret Street and 147th Avenue in 2019, and instead monitor pavement conditions at the intersection and recommend future improvements as needed.

Chairperson Kuzma asked if there would be available funding to fix the intersection if that was needed.

Public Works Superintendent Riemer stated that if the reconstruction of the intersection was needed there would be an estimated cost of $8,000 to $10,000. He stated that most of the users that were in that area have moved out, so there should not be much wear on the road for the time being.

Councilmember Riley stated that he agrees that the City should not reconstruct the intersection just to reconstruct it again in the future. He also noted that road improvements continue to be a high priority and therefore it seems odd to postpone needed improvements.

City Engineer Westby stated that public works is behind on its patching and did not believe it would make sense to take time away from patching other more highly used roads to repair this intersection.

Councilmember Riley agreed that this should be postponed.

Councilmember Heinrich asked when this improvement would then occur.

City Engineer Westby replied that reconstruction of the roadway will most likely follow the redevelopment of this area.

Community Development Director Gladhill stated that this road is within TIF 14 and therefore when redevelopment occurs, TIF could be an option for funding the road reconstruction.

The Committee provided consensus direction to suspend improvements to the intersection of Ferret Street and 147th Avenue in 2019.

6.02: Update on Variolite Street Reconstruction Options

City Engineer Westby stated that typically staff starts developing street reconstruction and overlay projects for the following year in July or August, based on the workload and the scope of the projects. During the last five years, staff has followed the same project development process for all street reconstruction and overlay projects using the City's adopted Special Assessment Policy and 2015-2019 Street Reconstruction and Overlay Program.

City Engineer Westby provided additional details on the process which includes the creation of a Feasibility Study/Report. He noted that currently the City does not have an adopted five-year Street Reconstruction and Overlay Program identifying projects that are eligible for the use of

special assessment to pay a portion of the project costs. In addition, discussions are still underway as to how the City should fund street reconstruction and overlay projects. Engineer staff are therefore not able to start developing street reconstruction and/or overlay projects for 2020.

City Engineer Westby stated that staff recently developed a five-year CIP based on the Franchise Fee funding model that included the reconstruction of Variolite Street between Alpine Drive and 173rd Avenue in 2020. This is due to the poor condition of the pavement, as well as the fact that only 13 assessable properties exist along this 2.24 mils segment of road which minimizes the dependence on assessments to pay for the improvements. Staff will be evaluating the 2020-2029 CIP in August, at which time projects in the 2019-2028 CIP will be adjusted based on numerous factors. Variolite Street is limited in the 2019-2028 CIP as a 2022 reconstruction project.

City Engineer Westby stated that the estimated project cost for reconstructing Variolite Street is $2,643,600 of which $315,330 is estimated to be funded through stormwater funds which would leave an estimated $2,328,270 unfunded. If Franchise Fees were to end up being the City's funding source for street reconstruction and overlay projects, it would take a year or more to build the fund balance up so projects could be fully paid through the fund. Municipal State Aid System funds are available to pay for the reconstruction of Variolite Street in 2020 since Variolite Street is an MSA route. In addition, approximately $203,000 is available from the unexpended street reconstruction funds as recently discussed.

City Engineer Westby stated that if the Public Works Committee provides consensus direction that staff should proceed to develop the Variolite Street reconstruction project for 2020, staff would prepare a case for the July 23rd City Council meeting requesting authorization to proceed with hiring consultants to collect topographic survey data, complete soil borings and prepare a geotechnical report this summer/fall.

Chairperson Kuzma stated that without having the funding source in place it would make sense to have something to move forward with as a project for 2020 and therefore would support this option.

Councilmember Heinrich agreed that this project should move forward.

Councilmember Riley agreed that the City cannot go one year without completing a road improvement project. He noted that he drove this roadway the previous day and agrees that this should be improved in 2020. He stated that he appreciated the options for funding provided. He stated that he can see the arguments to support assessing the project or not assessing the project as the discussions regarding franchise fees continue.

City Engineer Westby stated that the discussion regarding assessment could be deferred until later this fall.

Councilmember Riley noted that although there are homes on the road, this is not a residential road as 90 percent of the traffic using this road is just passing by. He stated that perhaps this would be a case for assessing a flat amount rather than a percentage of the project cost.

City Engineer Westby stated that staff can move forward and collect proposals from consultants and bring back the topic for further discussion of options for assessments.

The Committee provided consensus direction for staff to proceed on development of the Variolite Street reconstruction project for 2020.

6.03: Staff Update on Improvement Projects and Items of Interest

City Engineer Westby provided a brief updated on improvement projects and other items of interest.

6.04: Review Future Topics Calendar

Public Works Superintendent Riemer stated that the second round of manganese testing was completed and provided a map showing the results, noting that all the test locations measured under the threshold. He confirmed that the information will be shown on the City website.

Councilmember Heinrich asked staff to follow up with Ramsey Elementary to determine if the school has a water softener.

7. ADJOURNMENT

Motion by Councilmember Heinrich, seconded by Councilmember Riley, to adjourn the Public Works Committee meeting.

Motion carried.

The regular meeting of the Public Works Committee adjourned at 6:00 p.m.

Respectfully submitted,

_____

Grant Riemer
Public Works Superintendent

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

Public Works Committee **5. 1.**

Meeting Date: 09/17/2019

By: Grant Riemer, Engineering/Public Works

Title:

Consider Lowering Speed Limit on Residential Roads

Purpose/Background:

Purpose:
The purpose of this case is to consider lowering the speed limit on residential roads in the City of Ramsey.
Background:
The current speed limit on residential roads is 30 mph. In the past this speed limit was set by the Commissioner of Transportation at MnDot. Earlier this spring the State Legislature passed a law allowing the local road authority the ability to lower the speed limit on residential roads to 25 mph, if they so choose.

‘Residential roadway’ definition expanded

A “residential roadway” is now defined to include all city streets in an area zoned exclusively for housing and are not collector or arterial streets. The change in definition of a residential roadway expands the ability of cities to designate such streets at 25 mph, pursuant toMinnesota Statutes, section 169.14, subdivision 2 (7). Changing the speed limit on such a street no longer requires a traffic study by MnDOT, nor does it require an engineering analysis by the city. Cities may simply adopt the 25 mph speed limit by council action provided the roadway meets the new definition. After speaking with the city attorney he advised that any council action to change the speed limits must be done by ordinance, because only ordinances are enforceable by law.

Timeframe:

15 minutes

Observations/Alternatives:

City staff receives numerous phone calls from residents with concerns about motorists that they feel are speeding in their neighborhoods. Staff from Public Works, Engineering and the Police Department have discussed this issue and feel, if we are to change the speed limit on residential streets, it must be consistent city wide. Staffs reasoning is the cost of the additional signage would be prohibitive and enforcement for the PD would be difficult at best, if the speed limit changed from road section to road section.

Funding Source:

General Fund 0260-6249 Traffic Engineering

Recommendation:

Staff does not have a strong recommendation on this issue and can support either speed limit that the committee and ultimately the council decides upon. There will be a fairly substantial labor component switching the speed limit signs over though. Staff will have a better count on the number of signs that will need to be modified at the meeting.

Action:

Motion that the speed limit on residential streets remain at the current speed limit of 30 mph or
Motion to direct staff to begin developing a draft ordinance to lower the speed limit to 25 mph on all residential streets.

Attachments

No file(s) attached.

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:03 PM
Form Started By: Grant Riemer		Started On: 09/10/2019 01:04 PM
Final Approval Date: 09/12/2019		

Public Works Committee **5. 2.**

Meeting Date: 09/17/2019

By: Bruce Westby, Engineering/Public Works

Title:

Recommend City Council Approval of Funding Program for Variolite Street Reconstruction, Improvement Project #20-01

Purpose/Background:

Purpose:

The purpose of this case is to provide a recommendation to the City Council for approval of a funding program for Variolite Street Reconstruction, Improvement Project #20-01.

Background:

The 2.24-mile segment of Variolite Street between Alpine Drive and 173rd Avenue is proposed to be reconstructed in 2020. The pavement on this segment of Variolite Street is in poor condition (2018 average PASER rating of 4). Only 13 properties have direct access to this segment of Variolite Street and would therefore receive special benefit from the proposed improvements and could therefore be assessed a portion of the costs.

The estimated project cost for reconstructing this segment of Variolite Street is $2,643,600, of which $315,330 is estimated to be funded through Stormwater Funds. This leaves an estimated $2,328,270 unfunded. Municipal State Aid System funds are available to pay for the reconstruction of Variolite Street in 2020 since Variolite Street is an MSA route. In addition, approximately $203,000 is available from the unexpended street reconstruction funds as recently discussed.

From 2015 through 2019, street reconstruction and overlay project funding programs included levying special assessments against benefiting properties to cover up to 25% of eligible project costs in compliance with applicable provisions of the City Charter, the City's adopted Special Assessments Policy, and Minnesota Statute Chapter 429.

When special assessments pay for a portion of the project costs, the first step in the project development process is to request Council authorization to prepare a Feasibility Report. The Feasibility Report explores numerous aspects of the proposed improvements including whether they are feasible, necessary and cost-effective, and whether they should be completed alone or in conjunction with other improvements. Estimated project costs and a project funding program are also developed in greater detail than what was used to estimate costs and funding sources for the Capital Improvement Program. A preliminary project schedule is also developed within the Feasibility Report.

Over the last five years, Staff have typically started to develop street reconstruction and overlay projects for the following year in July or August based on workload and the scope of the projects. This is because special assessments were used to pay for a portion of the project costs. Later that fall Staff requests City Council acceptance of the Feasibility Report and authorization to prepare plans and specifications. Plans are then approved during the winter and the project is bid over the winter so construction can begin in the spring.

The City does not currently have an adopted 5-year Street Reconstruction and Overlay Program identifying projects that are eligible for bonding to allow the use of special assessments to pay for a portion of project costs. However, the City's adopted Special Assessments Policy is still valid and can be used to guide the City in applying special assessments to street reconstruction and overlay projects when bonding is not needed.

On July 16, 2019, the Public Works Committee provided consensus direction for staff to proceed on development of the Variolite Street reconstruction project for 2020. However, during that meeting it was discussed that the

Committee would consider whether special assessments should be used to pay for a portion of project costs at a later date.

On September 10, 2019, Staff received City Council authorization for Hakanson Anderson to complete topographic survey work, and for Northern Technologies, Inc. to prepare a geotechnical report, including the completion of 61 soil borings and pavement corings.

Staff is now requesting that the Public Works Committee discuss whether special assessments should be used to pay for a portion of the project costs, and then provide a recommendation to the City Council on whether special assessments should be part of the funding program and, if so, in what amount. If assessments are to be included in the funding program for this project, Staff will need to start working on the Feasibility Report as soon as possible.

Timeframe:

Staff estimates 20 minutes will be required to present this case and address questions.

Observations/Alternatives:

Observations:

Staff is requesting a recommendation from the Public Works Committee to the City Council regarding whether special assessments should be included as a funding source for the reconstruction of Variolite Street in 2020 and, if so, in what amount.

Alternatives:

Alternative #1: Motion recommending City Council approval of a funding program for the Variolite Street Reconstruction project, Improvement Project #20-01, including special assessments in the amount of $5,000 per benefiting property.

Alternative #2: Motion recommending City Council approval of a funding program for the Variolite Street Reconstruction project, Improvement Project #20-01, including special assessments in the amount of $_____ per benefiting property.

Alternative #3: Motion recommending City Council approval of a funding program for the Variolite Street Reconstruction project, Improvement Project #20-01, not including special assessments.

Funding Source:

Staff proposes the following funding program for this project:

- Municipal State Aid (MSA) funds – MSA funds are proposed to pay for the majority of project costs, and will pay for the portion of project costs ultimately proposed to be recovered from special assessment payments.
- Stormwater Management/Utility Funds – SWM/SWU funds are proposed to pay for all stormwater related project costs using a 50/50 split.
- Special Assessments – Assessments are proposed to be levied at a flat rate of $5,000 per benefiting property.

Recommendation:

Staff recommends Alternative #1. Levying special assessments on the 13 properties with direct access to Variolite Street will ensure that the City does not set a precedent whereby benefiting property owners on future street reconstruction and overlay projects could object to being specially assessed. Based on the results of Special Benefit Consultation Reports completed on past projects, Staff proposes to levy assessments in the amount of $5,000 per benefiting property. Staff believes this amount is reasonable, and that it can be legally defended, if needed.

Staff would support Alternative #2 if an assessment amount is chosen that is reasonable and can be legally defended.

Action:

Motion recommending City Council approval of a funding program for the Variolite Street Reconstruction project, Improvement Project #20-01, including special assessments in the amount of $5,000 per benefiting property.

Attachments

Variolite Street Accesses

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 09:45 AM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:10 PM
Form Started By: Bruce Westby		Started On: 09/12/2019 04:19 AM
Final Approval Date: 09/12/2019		

LEGEND

DRIVEWAY ACCESS

LOT LINE

(13 TOTAL PRIVATE ACCESSES)

VARIOLITE STREET (ALPINE DRIVE TO 173RD AVENUE)

CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

Jul 11, 2019 - 9:46am
G:\Engineering\2020 Projects\Variolite Street\Exhibits\Variolite Street Exhibits.dwg

Public Works Committee **5. 3.**

Meeting Date: 09/17/2019

By: Bruce Westby, Engineering/Public Works

Title:

Recommend City Council Approval of Ramsey Town Center 9th Addition Pond Lining Improvements, Improvement Project #19-06

Purpose/Background:

Purpose:

The purpose of this case is to recommend City Council approval of Ramsey Town Center 9th Addition Pond Lining Improvements, Improvement Project #19-06.

Background:

Two un-lined stormwater ponds were constructed as part of the Ramsey Town Center (RTC) 9th Addition in the early 2000's. However, the developer walked away from RTC 9 th Addition before it was completed. CentraHomes is currently completing this private residential development.

Based on current stormwater management and wellhead protection standards, infiltration of stormwater is prohibited in Wellhead Protection Areas, which encompasses all of RTC 9th Addition, including the two ponds. Staff is therefore proposing to line the two ponds in RTC 9th Addition to prevent infiltration.

While CentraHomes was developing their plans, Staff asked what their costs would be to line the ponds in hopes of executing a reimbursement agreement with them to complete the work all at one time. In order for CentraHomes to obtain quotes, they needed plans for the pond lining improvements. City Staff developed plans and provided them to CentraHomes. Unfortunately, their quotes were significantly higher than the engineer's estimate developed in house based on the plans prepared in house. Attached is a copy of the draft plans prepared by City Staff.

Staff would like to bid the project this fall/winter in hopes of receiving better bids based on the time of year. Staff will present the draft plans, and other information, in more detail during the meeting.

Timeframe:

Staff estimates approximately 5 minutes will be required for presentation and discussion of this case.

Observations/Alternatives:

Observations:

Lining the ponds will protect the source aquifer for the City's municipal water supply system.

Alternatives:

Alternative #1: Motion to recommend City Council approval of Ramsey Town Center 9th Addition Pond Lining Improvements, Improvement Project #19-06.

Alternative #2: Motion of other.

Funding Source:

The engineer's estimate of project costs for the improvements is $85,000. Project costs are proposed to be split evenly between Stormwater Management and Stormwater Utility Funds.

Recommendation:

Staff recommends alternative #1.

Action:

Motion to recommend City Council approval of Ramsey Town Center 9th Addition Pond Lining Improvements, Improvement Project #19-06.

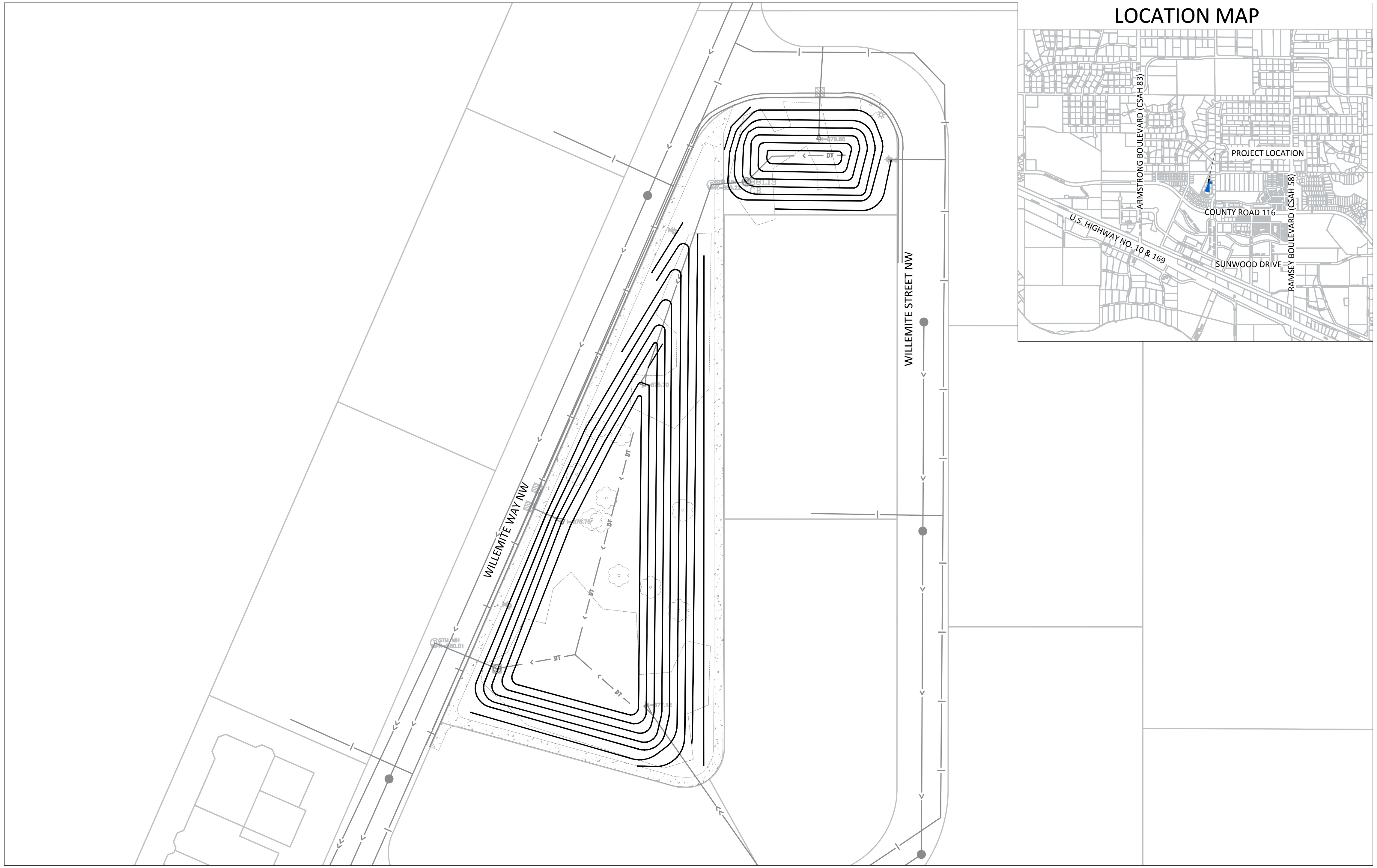
Attachments

Draft Plans IP1906

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 11:44 AM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:08 PM
Form Started By: Bruce Westby		Started On: 09/12/2019 04:35 AM
Final Approval Date: 09/12/2019		

CITY OF RAMSEY
RTC 9TH POND LINING IMPROVEMENTS
CITY IMPROVEMENT PROJECT NO. 19-06



0 50 100 150
SCALE (FEET)

N

CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL
1-800-252-1166 OR 651-454-0002

Call before you dig
811
651 454-0002 Metro
800 252-1166 Outstate
www.gopherstateonecall.org

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS AND ORDINANCES SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

SHEET INDEX

THIS PLAN CONTAINS 6 SHEETS

LEGEND

LIGHT POLE	EASEMENT
TREE	RIGHT OF WAY
TREE	ELECTRIC
SHRUB	OVERHEAD ELECTRIC
SIGN	GAS
VALVE	TELECOMMUNICATIONS
UTILITY PEDESTAL	STORM SEWER
HAND HOLE	SANITARY SEWER
	WATERMAIN
REMOVE TREE	SAWCUT PAVEMENT
3'X2' CATCH BASIN	TREE LINE
MANHOLE	FENCE
INLET PROTECTION	LANDSCAPING
	RETAINING WALL
HYDRANT	5' CONTOUR LINE
VALVE	1' CONTOUR LINE
	SILT FENCE

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

BRUCE WESTBY, P.E.
RAMSEY CITY ENGINEER

40116
LIC. NO.

DATE 5/1/19

DATE	REVISION

May 01, 2019 – 3:27pm
G:\Engineering\AutoCad Dwgs\Projects N-Z\RTC 9th Pond Lining 19-06\Plan Drawings\19-06 Cover & Notes.dwg

STATEMENT OF ESTIMATED QUANTITIES

19-06 RTC 9TH POND LINING IMPROVEMENTS

ITEM NO.	NOTE	MNDOT NO.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
1		2021.501	MOBILIZATION	LS	1
2		2101.511	CLEARING & GRUBBING	LS	1
3		2104.501	REMOVE SEWER PIPE (4" DRAINTILE)	LF	260
4		2104.521	SALVAGE & INSTALL PIPE STORM SEWER	LF	64
5		2104.523	SALVAGE & INSTALL PIPE APRON	EA	4
6		2104.523	SALVAGE & INSTALL CASTING	EA	2
7	1	2105.501	COMMON EXCAVATION (EV)	CY	945
8		2105.604	GEOMEMBRANE SYSTEM (GEOSYNTHETIC CLAY LINER)	SY	1,951
9		2105.604	GEOTEXTILE FABRIC TYPE IV	SY	86
10	1	2105.607	GRANULAR EMBANKMENT (CV)	CY	638
11		2501.515	15" RC PIPE APRON	EA	2
12		2501.602	TRASH GUARD FOR 15" RC PIPE APRON	EA	2
13		2503.511	15" RC PIPE SEWER, DESIGN 3006 CLASS III	LF	26
14	5	2503.602	CONNECT TO EXISTING STORM SEWER	EA	2
15		2511.501	RANDOM RIP RAP CLASS III	CY	20
16		2573.53	STORM DRAIN INLET PROTECTION	EA	7
17	3	2574.508	FERTILIZER TYPE 3	LB	135
18	2	2575.502	SEED MIXTURE 33-261	LB	25
19	4	2575.511	MULCH MATERIAL TYPE 1	TON	0.14
20		2575.519	DISK ANCHORING	ACRE	0.14
21		2575.523	EROSION CONTROL BLANKET CATEGORY 3	SY	2,464
22		2575.605	SEEDING	ACRE	0.64

NOTE:

1. EV TO CV CONVERSION FACTOR = 1.2.
2. SEED MIXTURE 33-261 APPLICATION RATE OF 35 LB/ACRE.
3. FERTILIZER TYPE 3 APPLICATION RATE OF 200 LB/ACRE.
4. MULCH MATERIAL TYPE 1 APPLICATION RATE OF 2 TON/ACRE.
5. MANHOLE CORING AND GROUTING IS INCIDENTAL TO PAY ITEM.
6. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. IT IS NOT GUARANTEED ANY OR ALL EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

DATE	REVISION

May 01, 2019 - 3:27pm
G:\Engineering\AutoCad Dwgs\Projects N-Z\RTC 9th Pond Lining 19-06\Plan Drawings\19-06 Cover & Notes.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Engineer
Date 5/1/19 Lic. No. 40116

DESIGNED BY:	JJF		
DRAWN BY:	JJF	DATE:	5/1/19
CHECKED BY:	BRW	FILE No.	19-06

City of RAMSEY
CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

STATEMENT OF ESTIMATED QUANTITIES

RTC 9TH POND LINING IMPROVEMENTS
CITY PROJECT NO. 19-06
CITY OF RAMSEY, MINNESOTA

0 15 30 45
SCALE (FEET)

N

SALVAGE CASTING

WILLEMITE WAY NW

SALVAGE PIPE APRON

PROTECT B618 CONCRETE CURB & GUTTER (TYP.)

SALVAGE PIPE APRON

SALVAGE STORM SEWER PIPE (40 LF)

REMOVE 4" DRAINTILE
(200 LF)

SALVAGE PIPE APRON

SALVAGE STORM SEWER PIPE (16 LF)

PROTECT CONCRETE SIDEWALK (TYP.)

SALVAGE CASTING

REMOVE 4" DRAINTIL
(60 LF)

SALVAGE PIPE APRON

SALVAGE STORM SEWER PIPE (8 LF)

WILLEMITE STREET NW

LEGEND

- LINER EXTENTS
- REMOVE PIPE
- SALVAGE PIPE
- SALVAGE CASTING
- SALVAGE PIPE APRON
- REMOVE TREE
- REMOVE TREE AREA

DATE	REVISION

May 01, 2019 - 3:27pm
G:\Engineering\AutoCad Dwgs\Projects N-Z\RTC 9th Pond Lining 19-06\Plan Drawings\19-06 Existing Conditions & Removals.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Engineer
Date 5/1/19 Lic. No. 40116

DESIGNED BY:	JJF		
DRAWN BY:	JJF	DATE:	5/1/19
CHECKED BY:	BRW	FILE No.	19-06

City of RAMSEY

CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

EXISTING CONDITIONS & REMOVALS

RTC 9TH POND LINING IMPROVEMENTS
CITY PROJECT NO. 19-06
CITY OF RAMSEY, MINNESOTA

SHEET 3 OF 6 SHEETS

0 15 30 45
SCALE (FEET)

INSTALL SALVAGED CASTING
CONNECT TO STORM MANHOLE (CORE DRILL)
INV. 874.90

10' - 15" RCP @ 1.00%

INSTALL 15" PIPE APRON W/TRASH GUARD
INV. 875.00

WILLEMITE WAY NW

INSTALL SALVAGED PIPE APRON INV. 875.75

INSTALL SALVAGED PIPE APRON INV. 875.70

INSTALL SALVAGED STORM SEWER PIPE (40 LF)

INSTALL SALVAGED CASTING
CONNECT TO STORM MANHOLE (CORE DRILL)
INV. 876.50

16' - 15" RCP @ 9.38%

INSTALL 15" PIPE APRON W/TRASH GUARD
INV. 878.00

INSTALL SALVAGED PIPE APRON INV. 877.12

INSTALL SALVAGED STORM SEWER PIPE (16 LF)

GEOSYNTHETIC CLAY LINER (1,556 SY)
INSTALL TO 879 ELEVATION.
PLACE 1 FOOT OF COVER MATERIAL OVER LINER
PER SPECIFICATIONS.

GEOSYNTHETIC CLAY LINER (395 SY)
INSTALL TO 883 ELEVATION.
PLACE 1 FOOT OF COVER MATERIAL OVER LINER
PER SPECIFICATIONS.

SALVAGE STORM SEWER PIPE (8 LF)

INSTALL SALVAGED PIPE APRON INV. 879.86

WILLEMITE STREET NW

LEGEND

- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- INSTALL STORM PIPE
- INSTALL CASTING
- INSTALL PIPE APRON
- POND LINER AREA

NOTE:
EXCAVATE 1-FOOT BELOW FINISH GRADE TO LIMITS SHOWN FOR GEOSYTHETIC LINER. LINER IS TO BE PLACED PER SPECIFICATION AND MANUFACTURER RECCOMENDATION.
1-FOOT OF CLEAN MATERIAL MEETING SPECIFICATIONS IS REQUIRED TO BE PLACED ON THE LINER. NO CONSTRUCTION EQUIPMENT IS TO BE PLACED ON LINER WITHOUT COVER MATERIAL.
IF SALVAGED MATERIAL FROM ON-SITE IS USED, IT MUST BE CLEAN OF ALL DEBRIS.

DATE	REVISION

May 01, 2019 - 3:28pm
G:\Engineering\AutoCad Dwgs\Projects N-Z\RTC 9th Pond Lining 19-06\Plan Drawings\19-06 Proposed Grading.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Engineer
Date 5/1/19 Lic. No. 40116

DESIGNED BY: JJF	
DRAWN BY: JJF	DATE: 5/1/19
CHECKED BY: BRW	FILE No. 19-06

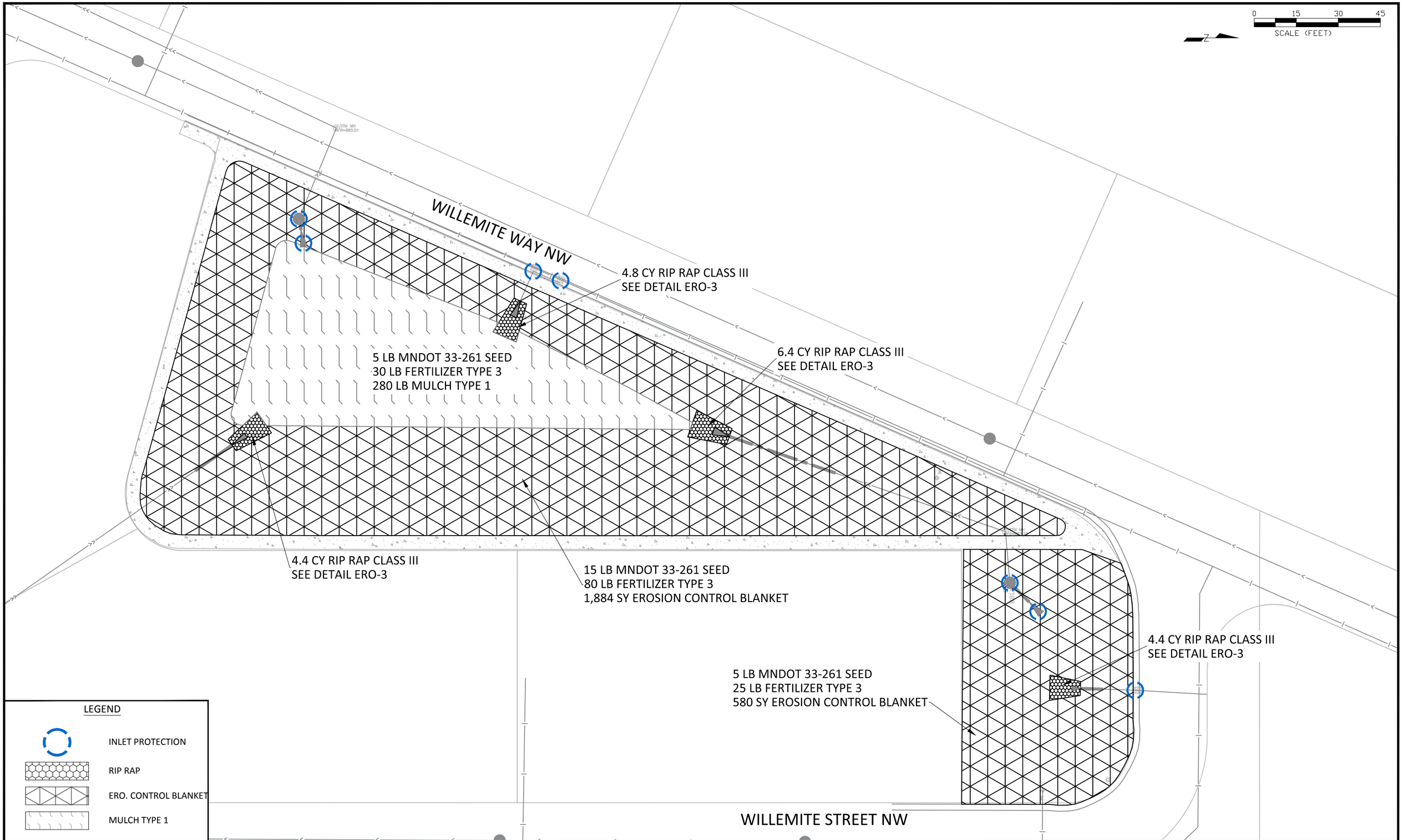
City of RAMSEY

CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

PROPOSED GRADING

RTC 9TH POND LINING IMPROVEMENTS
CITY PROJECT NO. 19-06
CITY OF RAMSEY, MINNESOTA

SHEET 4 OF 6 SHEETS



DATE	REVISION

May 01, 2019 - 3:28pm
G:\Engineering\AutoCad Dwgs\Projects N-Z\RTC 9th Pond Lining 19-06\Plan Drawings\19-06 Proposed Grading.dwg

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Engineer
Date 5/1/19 Lic. No. 40116

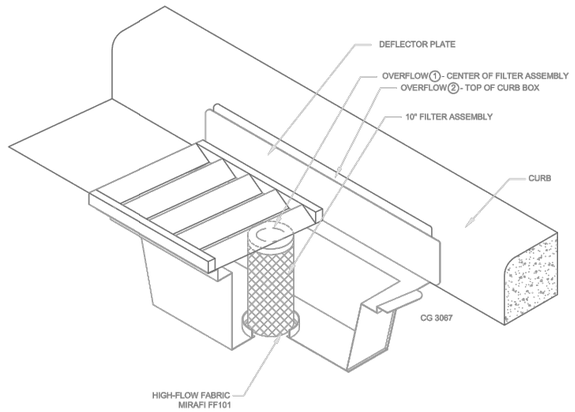
DESIGNED BY:	JJF	
DRAWN BY:	JJF	DATE: 5/1/19
CHECKED BY:	BRW	FILE No. 19-06

City of RAMSEY
CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

RESTORATION

RTC 9TH POND LINING IMPROVEMENTS
CITY PROJECT NO. 19-06
CITY OF RAMSEY, MINNESOTA

SHEET 5 OF 6 SHEETS

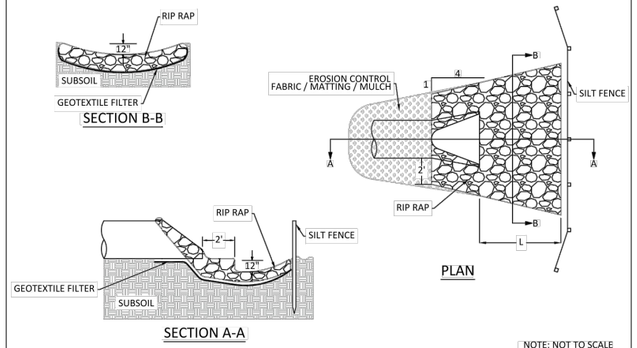


INLET PROTECTION – WIMCO OR EQUAL

N.T.S.

NOTE:
THIS INLET PROTECTION SHALL BE USED IMMEDIATELY FOLLOWING CURB & GUTTER CONSTRUCTION. INLET PROTECTION SHALL REMAIN INSTALLED AND MAINTAINTED UNTIL ALL HOME CONSTRUCTION IS COMPLETE.

APPROVED:		STANDARD DETAILS:
1 – 2016	City of RAMSEY	INLET PROTECTION
		CITY PLATE No. ER0–2



NOTE: NOT TO SCALE

NOTES:

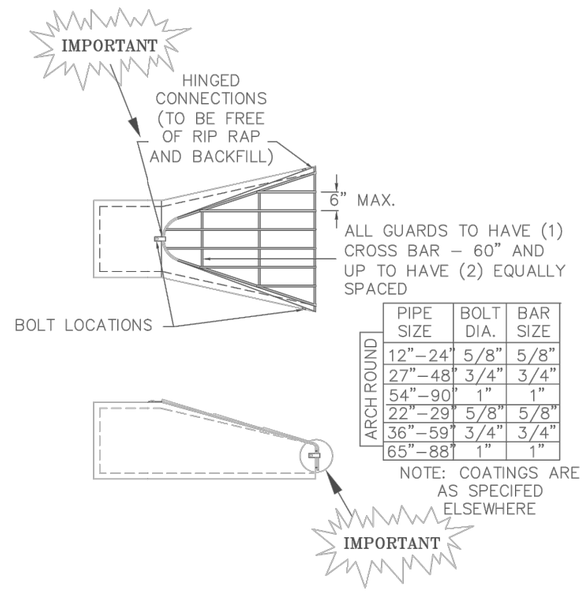
1. ON SLOPES 4:1 OR GREATER, ANCHOR OR STRAIGHT DISKED STRAW MULCH, SEEDED NETTING, GABRIC, OR MATTING SUCH AS EXCELSIOR SHALL BE USED TO STABILIZE DISTURBED SOILS. THESE EXPOSED SOILS MUST BE STABILIZED IMMEDIATELY AFTER GRADING OF SOIL IS COMPLETE.
2. A SKIRTING OF EROSION CONTROL FABRIC OR MULCH MUST BE USED TO PROTECT OUTLETS AS ILLUSTRATED REGARDLESS OF SLOPE.
3. RIP RAP IS CLASS III PLACED 18" THICK.
4. FOR PIPE GREATER THAN 48" DIAMETER OR 58" SPAN, QUANTITY OF GEOTEXTILE FABRIC AND RIP RAP WILL BE HANDLED IN A CASE BY CASE MANNER.
5. GEOTEXTILE FABRIC SHALL COVER THE BOTTOM AND SIDES OF THE AREA EXCAVATED FOR THE RIP RAP MATERIAL.

RIP RAP AT RCP OUTLETS			
DIA. OF PIPE (IN.)	L (FT.)	GEOTEXTILE FABRIC (SY)	18" DEPTH RIP RAP (CU. YD)
12	8	19.6	4.4
15	8	20.8	4.8
18	10	25.6	6.4
21	10	27.4	7.1
24	12	33.4	9.2
27	12	35.2	9.9
30	14	41.6	12.3
36	16	50.5	15.8
42	18	57.8	18.7
48	20	66.5	22.2

RIP RAP AT RCP-A OUTLETS			
SPAN OF PIPE (IN.)	L (FT.)	GEOTEXTILE FABRIC (SY)	18" DEPTH RIP RAP (CU. YD)
22	10	25.6	6.1
28	12	33.2	8.5
36	14	41.5	11.2
43	16	50.5	14.3
51	18	57.5	16.9
58	20	65.2	19.8

APPROVED:		STANDARD DETAILS:
9 – 2016	City of RAMSEY	RIP–RAP
		CITY PLATE No. ER0–3

NOTE:
GUARDS MUST BE INCORPORATED ON ALL INSTALLATIONS EXCEPT WHERE SPECIFICALLY ALLOWED OTHERWISE BY THE CITY ENGINEER.

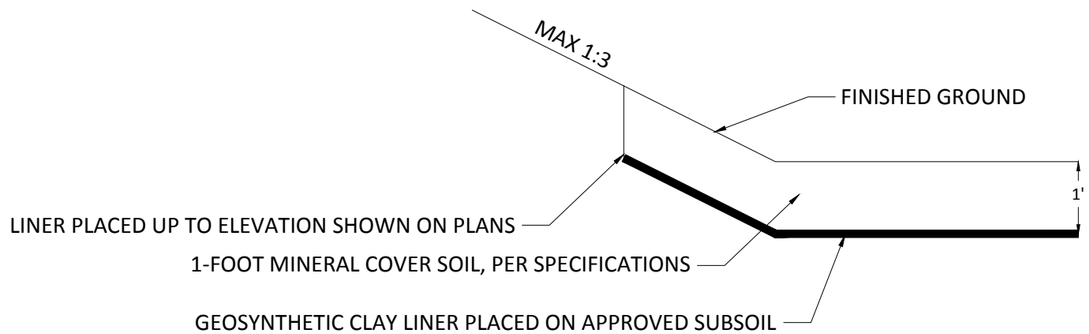


	PIPE SIZE	BOLT DIA.	BAR SIZE
ARCH ROUND	12"–24"	5/8"	5/8"
	27"–48"	3/4"	3/4"
	54"–90"	1"	1"
	22"–29"	5/8"	5/8"
	36"–59"	3/4"	3/4"
	65"–88"	1"	1"

NOTE: COATINGS ARE AS SPECIFED ELSEWHERE

APPROVED:		STANDARD DETAILS:
2 – 2006	City of RAMSEY	TRASH GUARD
		CITY PLATE No. ST0–8

POND LINER DETAIL



EXCAVATION BELOW FINISHED GRADE PAID AS COMMON EXCAVATION (EV).
1-FOOT COVER SOIL PAID AS GRANULAR EMBANKMENT (LV).

ALL OVERLAPPING, SEAMING MATERIALS, GCL COLLARS REQUIRED FOR STRUCTURES NECESSARY FOR PLACEMENT OF GCL PER MANUFACTURER AND SPECIFICATIONS IS INCIDENTAL.

DATE	REVISION

May 01, 2019 - 3:28pm
G:\Engineering\AutoCad Dwgs\Projects N-Z\RTC 9th Pond Lining 19-06\Plan Drawings\19-06 Cover & Notes.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Engineer
Date 5/1/19 Lic. No. 40116

DESIGNED BY:	
JJF	
DRAWN BY: JJF	DATE: 5/1/19
CHECKED BY: BRW	FILE No. 19-06

City of RAMSEY

CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

DETAILS

RTC 9TH POND LINING IMPROVEMENTS
CITY PROJECT NO. 19-06
CITY OF RAMSEY, MINNESOTA

SHEET 6 OF 6 SHEETS

Public Works Committee **5. 4.**

Meeting Date: 09/17/2019

By: Bruce Westby, Engineering/Public Works

Title:

Recommend City Council Approval of Germanium Street Drainage Improvements, Improvement Project #19-09

Purpose/Background:

Purpose:

The purpose of this case is to recommend City Council approval of Germanium Street Drainage Improvements, Improvement Project #19-09.

Background:

The property owner at 17310 Germanium Street informed Staff in 2017 that stormwater runoff from Germanium Street runs into his front yard and ponds there, even though there is no drainage easement. He also noted that his septic system is in this general area as well.

Bolton & Menk collected topographic survey data this summer and City Staff is in the process of preparing draft plans, specifications and cost estimates to construct a small retaining wall at the outside edge of the City's right-of-way so stormwater runoff can be contained within the right-of-way west of Germanium Street. This will prevent the City from needing to acquire easements.

Staff is proposing to bid the project this fall/winter in hopes of receiving better bids based on the time of year, and based on bidding numerous projects at the same time. Staff will present the draft plans and cost estimate during the Public Works meeting.

Timeframe:

Staff estimates approximately 5 minutes will be required for presentation and discussion of this case.

Observations/Alternatives:

Observations:

Staff plans to request City Council approval of plans and specifications and authorization to advertise for bids on September 24th. Construction is proposed to be substantially complete this fall or winter, and complete by June 30, 2020.

Alternatives:

Alternative #1: Motion to recommend City Council approval of Germanium Street Drainage Improvements, Improvement Project #19-09.

Alternative #2: Motion of other.

Funding Source:

Staff is finalizing plans and estimated costs and will present these during the meeting. Project costs are proposed to be split evenly between Stormwater Management and Stormwater Utility Funds.

Recommendation:

Staff recommends alternative #1.

Action:

Motion to recommend City Council approval of Germanium Street Drainage Improvements, Improvement Project #19-09.

Attachments

Project Scope IP1909

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 01:26 PM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:11 PM
Form Started By: Bruce Westby		Started On: 09/12/2019 04:37 AM
Final Approval Date: 09/12/2019		

17310 Germanium Street Drainage

Topo Area 16,500 s.f.

Feet
0 12.5 25 50 75 100

Print Date: May 15, 2019

Public Works Committee **5. 5.**

Meeting Date: 09/17/2019

By: Bruce Westby, Engineering/Public Works

Title:

Recommend City Council Approval of Hedgehog Street Drainage Improvements, Improvement Project #19-10

Purpose/Background:

Purpose:

The purpose of this case is to recommend City Council approval of Hedgehog Street Drainage Improvements, Improvement Project #19-10.

Background:

The property owner at 15639 Hedgehog Street informed Staff in 2018 that stormwater runoff from Hedgehog Street and 156th Lane NW runs through a ditch on their property but lately the runoff is extending outside the easement area to within about 10 feet of the back door. The property owner inquired what the City could do to help prevent stormwater runoff from ponding in their back yard.

City Staff collected topographic survey data in late 2018 and early 2019, and is now preparing draft plans, specifications and cost estimates for a drainage improvement project that includes re-grading the existing drainage swale along the south property line of 15639 Hedgehog Street, directly across from 156th Lane NW. The ditch and proposed grading improvements are located within an existing drainage easement that front several properties in the area. The City will not need to acquire easements to complete this work.

Staff is proposing to bid the project this fall/winter in hopes of receiving better bids based on the time of year, and based on bidding numerous projects at the same time. Staff will present the draft plans and cost estimate during the Public Works meeting. A copy of the draft title sheet from the plans is attached for reference

Timeframe:

Staff estimates approximately 5 minutes will be required for presentation and discussion of this case.

Observations/Alternatives:

Observations:

Staff plans to request City Council approval of plans and specifications and authorization to advertise for bids on September 24th. Construction is proposed to be substantially complete this fall or winter, and complete by June 30, 2020.

Alternatives:

Alternative #1: Motion to recommend City Council approval of Hedgehog Street Drainage Improvements, Improvement Project #19-10.

Alternative #2: Motion of other.

Funding Source:

Staff is finalizing plans and estimated costs and will present these during the meeting. Project costs are proposed to be split evenly between Stormwater Management and Stormwater Utility Funds.

Recommendation:

Staff recommends alternative #1.

Action:

Motion to recommend City Council approval of Hedgehog Street Drainage Improvements, Improvement Project #19-10.

Attachments

Draft Plan Title Sheet IP1910

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 01:25 PM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:12 PM
Form Started By: Bruce Westby		Started On: 09/12/2019 04:38 AM
Final Approval Date: 09/12/2019		

CITY OF RAMSEY
HEDGEHOG STREET DRAINAGE IMPROVEMENTS
CITY IMPROVEMENT PROJECT NO. 19-10

LOCATION MAP

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS AND ORDINANCES SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

SHEET INDEX

THIS PLAN CONTAINS --- SHEETS

LEGEND

LIGHT POLE	EASEMENT
TREE	RIGHT OF WAY
TREE	ELECTRIC
SHRUB	OVERHEAD ELECTRIC
SIGN	GAS
VALVE	TELECOMMUNICATIONS
UTILITY PEDESTAL	STORM SEWER
HAND HOLE	SANITARY SEWER
REMOVE TREE	WATERMAIN
3'X2' CATCH BASIN	SAWCUT PAVEMENT
MANHOLE	TREE LINE
INLET PROTECTION	FENCE
HYDRANT	LANDSCAPING
VALVE	RETAINING WALL
	5' CONTOUR LINE
	1' CONTOUR LINE
	SILT FENCE
	SURM. CONCRETE CURB & GUTTER
	B618 CONCRETE CURB & GUTTER
	REMOVE BITUMINOUS PAVEMENT
	SODDING TYPE LAWN
	CONCRETE PAVEMENT
	BITUMINOUS PAVEMENT
	GRAVEL SURFACE
	ROCK CONSTRUCTION EXIT

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

57095 DATE ---

LIC. NO.

BRUCE WESTBY, P.E.
RAMSEY CITY ENGINEER

DATE	REVISION

SHEET 1 OF --- SHEETS

0 50 100 150
SCALE (FEET)

N

City of RAMSEY

CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL 1-800-252-1166 OR 651-454-0002

GSOC

Call before you dig
811
651 454-0002 Metro
800 252-1166 Outstate
www.gopherstateonecall.org

Public Works Committee **5. 6.**

Meeting Date: 09/17/2019

By: Bruce Westby, Engineering/Public Works

Title:

Recommend City Council Approval of Water Efficiency Grant Application

Purpose/Background:

The Metropolitan Council is offering grants from $2,000 to $50,000 to municipal water suppliers to help increase water efficiency by lowering the cost for residents to purchase and install products that reduce water use including toilets, washing machines, and irrigation sprinklers and controllers.

Municipalities may use grant funds to fund rebates to residents who replace inefficient water-using devices with approved devices that use substantially less water, or for irrigation system audits. The Metropolitan Council administered a water efficiency grant program during the 2015 - 2017 biennium using $500,000 from the Clean Water Fund, which yielded an estimated total savings of 52 million gallons of water per year.

This grant program requires that products be labeled by the U.S. Environmental Protection Agency's WaterSense program or, in the case of washing machines, by the U.S. Department of Energy's Energy Star program. Grant funds can only be used for appliance replacement, not for first-time purchases for new developments.

Municipalities are responsible for developing and operating their own rebate programs. The grant funds will cover 75% of program costs, with a required 25% local match of which residents must pay a portion of the cost for any device or water use audit they purchase.

Grant applications will be accepted through September 30, 2019. Required application information includes:

- Rebate or grant program design and work plan
- Proposed examples of communications to property owners
- Requested total grant amount
- Estimated annual amount of water saved by the applying municipality
- Details about the program and the grant application.

Timeframe:

Staff estimates 10 minutes will be needed to present this case and address questions.

Observations/Alternatives:

This grant funding opportunity seems to be a perfect fit for the City of Ramsey for several reasons.

The Environmental Policy Board's (EPB) 2017 - 2019 Work Plan includes a tactic to "Extend the longevity of drinking water supply by reducing demand on groundwater" and specifies as a key outcome, the development of incentives and/or programs to promote water conservation. If successful in obtaining grant funds, the funds could be used to purchase smart controllers and/or soil moisture sensors that could be available for existing water customers that have older, in-ground irrigation systems without these technologies. The EPB discussed this grant program on August 19 th and supported an application. Attached is a copy of the draft EPB meeting minutes.

This grant could help the City to significantly reduce peak demand on our municipal water supply system during summer months, which would allow the City to run fewer wells in the summer thereby reducing manganese concentrations. This could also allow the City to delay or even omit the installation of new water supply wells in the

future.

The City partnered with the Metropolitan Council on their 2018 Water Efficiency Potential project. This partnership essentially focused on how Ramsey could maximize economic benefits from various residential-based water conservation efforts. Having just recently completed that project should help Ramsey score well on an application for the Water Efficiency Grant Program.

City Staff attended an informational workshop on this grant program at the end of August. If the Committee supports applying for this grant, Staff would use what was learned at the workshop to develop the framework for an incentive and/or rebate program, which could then be presented to the City Council for authorization to submit the grant application and supporting information by September 30, 2019.

Alternatives:
Alternative #1: Motion to recommend City Council approval of a Water Efficiency Grant application.

Alternative #2: Motion of other.

Funding Source:
There is a twenty-five percent (25%) required local match if awarded grant funding. Staff would propose that this come from the City's water enterprise fund, with a portion being reimbursed by payments from residents for any device or water use audit they purchase.

Recommendation:
Staff recommends alternative #1.

Action:
Motion to recommend City Council approval of a Water Efficiency Grant application.

Attachments

Water Efficiency Grant Program Guidelines

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 11:21 AM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:13 PM
Form Started By: Bruce Westby		Started On: 09/12/2019 09:51 AM
Final Approval Date: 09/12/2019		

Metropolitan Council
Water Efficiency Grant Program

Overview
The Metropolitan Council (Council) will implement a water efficiency grant program effective September 30, 2019 to June 30, 2022. Grants will be awarded on a competitive basis to municipalities that manage municipal water systems. The Council will provide 75% of the program cost; the municipality must provide the remaining 25%. Municipalities will use the combined Council and municipality funds to run their own grant or rebate programs.

Grants will be made available in amounts with a minimum of $2,000 and a maximum of $50,000. Grantees will be required to provide estimated water savings achieved through this program for Clean Water, Land & Legacy Amendment reporting purposes.

Legislative Directive - Minnesota 2019 Session Law
> $375,000 the first year and $375,000 the second year are for the water demand reduction grant program to encourage municipalities in the metropolitan area to implement measures to reduce water demand to ensure the reliability and protection of drinking water supplies. Fiscal year 2020 appropriations are available until June 30, 2021, and fiscal year 2021 appropriations are available until June 30, 2022.

Grant Program Goal
The goal of the water efficiency grant program is to support technical and behavioral changes that improve municipal water use efficiency in the seven-county metropolitan area.

Critical Points to Remember
- The applying municipality must be a water supplier
- New construction and new developments are not eligible
- Funds are for rebates or grants only; consulting and city staff time are ineligible
- Combined Council and municipality funds cannot pay for 100% of an eligible activity's cost
- A portion of each eligible activity's cost must be paid by the property owner
- Grant recipients must display the Clean Water, Land and Legacy Amendment logo and the Metropolitan Council logo on program-related web pages and paper communications

Grant Program Structure: Administration and Funding
The Water Efficiency Grant Program will be administered by Metropolitan Council Environmental Services (MCES) and will be funded with $750,000 appropriated by the 2019 Minnesota Legislature. Grant applications will be reviewed and ranked by the MCES Water Supply Planning Unit staff.

Grants are only for water efficiency programs offering rebates or grants to property owners who are customers of the municipal water supply system and who replace specified water using devices with approved devices that use substantially less water.

Grants will be awarded to municipalities in amounts ranging from $2,000 to $50,000 for providing rebates or grants to property owners. Municipalities will be responsible for the design and operation of their rebate or grant program and its details. Grant payments to the municipality will be for 75% of approved program amounts. The municipality must provide the remaining 25% of the program cost. Municipality rebates or grants are eligible for reimbursement on device replacements conducted September 30, 2019 through June 30, 2022.

Here is an example showing the grant funding design:

Metropolitan Council Grant Amount	**$15,000**
Municipality Match	$5,000
Municipality Grant/Rebate Program Total	$20,000

Eligibility

Per legislative language, the grant program is limited to municipalities in the seven-county metropolitan area.

Municipalities eligible per above must apply to participate and, if approved, sign a standard Council Grant Agreement, before any eligible rebates or grants can be submitted for reimbursement. Agreements shall require that municipalities:

- Entirely pass through grants received (as is being done by MCES)
- Verify purchase of devices to receive grants
- Retain records and cooperate with any audits
- Conduct all communications with property owners and ensure all written communications to property owners include both the Clean Water, Land and Legacy Amendment and the Metropolitan Council's logo
- Provide quantitative information for state reporting purposes

Eligible water efficiency devices consist of the following:

- Toilet replacement with a US EPA WaterSense labeled toilet
- Irrigation controller replacement with a US EPA WaterSense labeled controller
- Clothes washing machine replacement with an US DOE Energy Star labeled clothes washing machine
- Irrigation spray sprinkler body replacement with a US EPA WaterSense labeled spray sprinkler body
- Irrigation system audit by an Irrigation Professional certified by a US EPA WaterSense program

Expenses eligible for reimbursement are the out-of-pocket cost of the device and its installation only, not to include any owner labor costs. In addition, new construction and new developments are ineligible, as this program is intended as a current infrastructure replacement program.

Application Process

- Applicants must be municipal water suppliers
- Municipalities will submit MCES supplied application form by September 30, 2019. Required information includes:
    - the municipality's rebate or grant program design and work plan
    - proposed examples of communications to property owners
    - requested total grant amount
    - estimated annual amount of water saved by the applying municipality

- Application form is available at: https://metrocouncil.org/Wastewater-Water/Funding-Finance/Available-Funding-Grants.aspx
- Submit competed application to: brian.davis@metc.state.mn.us
- Metropolitan Council will notify municipalities of grant awards and provide grant agreements by December 2, 2019.

Proposal Selection Criteria

In the event that funds requested exceed funds available, the following criteria will be used to determine the amount granted to a given municipality:

- Municipalities that are supplied 100% with groundwater
- Municipalities with identified water supply issues in Master Water Supply Plan Community Profiles or Local Water Supply Plans
- Municipalities' ratio of peak monthly water use to winter monthly water use
- Municipalities' average residential per capita water use
- The order in which applications are received and until grant funds are completely committed

Funding Process and Reporting Requirements

- Utilizing forms provided by MCES, the following information must be reported on a quarterly basis:
    - Number, type and amount of rebates or grants provided to property owners, along with each property address
    - Estimated annual gallons of water saved per device installation
    - Municipality matching funds disbursed
    - Number of unmet funding requests from property owners, if any
- Upon review and confirmation of the above information, MCES will process a grant payment in the amount of 75% of approved total rebates or grants for the reporting period.
- MCES will provide confirmation of grant balances available upon request and reserves the right to amend grant agreements, in collaboration with grantee municipality, if quarterly reporting indicates rebate or grant programs will not fully utilize grant awards within the grant period.

Qualified Activities

- Toilet replacement with a US EPA WaterSense labeled toilet: http://www.epa.gov/WaterSense/product_search.html

- Irrigation controller replacement with a US EPA WaterSense labeled controller: https://www.epa.gov/watersense/product-search

- Clothes washing machine replacement with an US DOE Energy Star labeled clothes washing machine: https://www.energystar.gov/productfinder/product/certified-clothes-washers/results

- Irrigation spray sprinkler body replacement with a US EPA WaterSense labeled spray sprinkler body https://www.epa.gov/watersense/product-search

- Irrigation system audit by an Irrigation Professionals certified by a US EPA WaterSense program https://www.epa.gov/watersense/find-pro

Reporting Example

Community	Property Street Address	Property Type	Device Replaced	Cost per Device	# of Devices	Rebate or Grant per Device	Est. Annual Water (Gal) Saved Per Device	Total Rebate or Grant	Municipality Contribution	Eligible Grant Amount
Anytown	652 Silvis St	Residential	Clothes Washer	$624.60	1	$150.00	3,000	$150.00	$37.50	$112.50
Anytown	1952 Ingram Way	Residential	Irrigation Controller	$199.99	1	$100.00	8,800	$100.00	$25.00	$75.00
Anytown	630 Gibbons Ave	Residential	Clothes Washer	$599.90	1	$150.00	3,000	$150.00	$37.50	$112.50
Anytown	4424 Barriger Blvd	Residential	Toilet	$168.00	1	$50.00	4,000	$50.00	$12.50	$37.50

Public Works Committee **6. 1.**

Meeting Date: 09/17/2019

By: Bruce Westby, Engineering/Public Works

Title:

Review Wellhead Protection Plan Part 2 Amendment

Purpose/Background:

Purpose:

The purpose of this case is review the Wellhead Protection Plan Part 2 Amendment in advance of the Public Hearing scheduled for Tuesday, September 24, 2019.

Background:

The Minnesota Department of Health (MDH) is charged with protecting drinking water sources throughout Minnesota per Minnesota Rules, Chapter 4720, Public Water Supplies, which includes administering the Wellhead Protection Program. The purpose of the program is to prevent contamination of public drinking water supplies by identifying water supply recharge areas and implementing management practices for potential pollution sources found within those areas. Public Water Suppliers, which includes municipalities, are required to maintain a Wellhead Protection Plan, and to amend it every 10 years.

City Staff has been working with MDH since March of 2017 to amend the City of Ramsey's Wellhead Protection Plan (WHPP), which was adopted January 4, 2010, and is effective until January 4, 2020. The City's WHPP must be amended by October 6, 2019 to meet the required 10-year update schedule.

The WHPP consists of two parts. Part 1 delineates the City's wellhead protection zone and drinking water supply management area (DWSMA), and assesses the vulnerability of our DWSMA and municipal water supply wells. Part 2 includes a potential contaminant source inventory, a potential contaminant source management strategy, an emergency/alternative water supply contingency plan, and wellhead protection program evaluation plan.

Part 1 of the WHPP was recently amended and approved by the MDH. A copy of the MDH approval letter, received February 4, 2019, is attached. As required, copies of the amended delineated wellhead protection areas, drinking water supply management areas, and assessments of well and aquifer vulnerabilities were issued to local units of governments wholly or partially within these areas within 30 days after receiving MDH approval of the Part 1 amendment. A copy of this letter with attachments is attached. The City was also required to conduct a public information meeting by April 4, 2019, to present the Part 1 amendments to the public. The public information meeting was conducted on March 19, 2019, as part of the Public Works Committee meeting.

To kick the Part 2 amendment process off, City and MDH Staff met on March 28, 2019, to discuss the scope of the required amendments. It was discussed that numerous data elements must be compiled and assessed as related to the management of potential contaminants in the drinking water supply management area that was approved with the WHPP Part 1 amendments. Data elements are pieces of information in the form of maps, lists, records, tables and inventories. Where appropriate, the elements should be reviewed and assessed in terms of their present and/or future implications on the 1) use of the wells, 2) quality and quantity of water supplying the public water supply wells, and 3) land and groundwater uses in the DWSMA.

MDH prepared a Scoping 2 Decision Notice after the meeting, which was submitted to the City via email on April 4, 2019. The Notice included a list of required data elements. A hard copy of this Notice, including an attachment noting Potential Contaminant Source Inventory (PCSI) requirements, was received in the mail on April 8, 2019. Copies of the Scoping 2 Decision Notice and PCSI requirements are attached. The MDH provided a deadline of

October 6, 2019, for completing and submitting the City of Ramsey's Wellhead Protection Plan Part 2 Amendment.

BARR engineering was enlisted to amend Part 2 of the WHPP based on staff's workload at the time, the scope of work required to amend Part 2 of the WHPP, and the minimal amount of time available to complete this work. The Public Works Committee supported using BARR Engineering to prepare the Part 2 Amendments at a not to exceed cost of $25,100. A copy of BARR's work proposal is attached.

Attached is a draft of the City of Ramsey's Part 2 Wellhead Protection Plan Amendment as prepared by BARR Engineering. Also attached is a copy of the cover letter as submitted to other local units of government for the purpose of soliciting public comment.

Timeframe:

Staff estimates 15 minutes will be needed to present this case and address questions.

Observations/Alternatives:

NA

Funding Source:

All costs for amending Parts 1 and 2 of the City's WHPP will be funded through the City of Ramsey's water enterprise funds.

Recommendation:

NA

Action:

No action is required for this case.

Attachments

MDH Approval Ltr WHPP Part 1
BARR WHPP Part 2 Amendment Proposal
WHPP Part 2 Hearing Notice LGUs
Draft WHPP Part 2 Amendment

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 11:18 AM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:06 PM
Form Started By: Bruce Westby		Started On: 09/12/2019 04:33 AM
Final Approval Date: 09/12/2019		

DEPARTMENT OF HEALTH

PROTECTING, MAINTAINING & IMPROVING THE HEALTH OF ALL MINNESOTANS

January 29, 2019

Mr. Bruce Westby, Engineer
City of Ramsey
7550 Sunwood Drive Northwest
Ramsey, Minnesota 55303

Dear Mr. Westby:

We are writing to notify you that the Minnesota Department of Health has approved the amended 1) delineation of the wellhead protection areas, 2) delineation of the drinking water supply management areas, and 3) assessments of well and aquifer vulnerability for your public water supply wells, as submitted. The approval pertains to the following public wells:

Well No. 1	Unique Well No. 161441
Well No. 2	Unique Well No. 416183
Well No. 3	Unique Well No. 580303
Well No. 4	Unique Well No. 580313
Well No. 5	Unique Well No. 593672
Well No. 6	Unique Well No. 706840
Well No. 7	Unique Well No. 743832
Well No. 8	Unique Well No. 743833

Procedurally, you must submit a copy of the amended delineated wellhead protection areas, drinking water supply management areas, and assessments of well and aquifer vulnerability to local units of government that are wholly or partially within these areas. Notification must occur within 30 days after receiving this letter. If you need assistance getting this information out, please contact Mr. John Freitag of the Minnesota Department of Health at (651) 201-4669.

The wellhead protection rule also requires the city of Ramsey to hold a public information meeting regarding the amended delineations and vulnerability assessments within 60 days of receiving approval by the health department. This meeting can be held solely for this purpose or it can be incorporated into another public meeting, such as a meeting of the city council. If you would like a representative of the state's wellhead protection program to be present at the public information meeting, please contact Mr. Freitag.

In closing, we commend the city of Ramsey for moving ahead to amend its wellhead protection plan. Mr. Freitag will be contacting you shortly to go over procedural issues in preparing the remainder of your wellhead protection plan amendment. Please contact me at (651) 201-4577 if you have any questions regarding this letter.

Sincerely,

Amal M. Djerrari, Hydrologist
Source Water Protection Unit
Environmental Health Division
P.O. Box 64975
St. Paul, Minnesota 55164-0975

AMD:TVW
cc: Mr. Leonard Linton, Civil Engineer, City of Ramsey
Mr. John Freitag, Planner, Source Water Protection Unit, Metro Office
Farm Service Agency

resourceful. naturally.
engineering and environmental consultants

BARR

April 10, 2019

Mr. Bruce Westby, P.E.
City Engineer
City of Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

Re: Part 2 Wellhead Protection Plan Amendment Assistance

Dear Mr. Westby:

Per your request, this letter presents Barr Engineering's proposed scope of work and cost estimate for preparing the Part 2 Wellhead Protection Plan amendment for the City of Ramsey (City).

Our project understanding, proposed scope of professional consulting services, and the assumptions upon which our cost estimate are based are presented below.

Project Understanding

Wellhead protection planning is ultimately about protecting the City's water supply, thereby protecting the public health. As you know, in the City's Part 1 Wellhead Protection Plan (WHPP) amendment, the area that encompasses the capture zones for the Ramsey water supply wells was delineated. This area is the City's Drinking Water Supply Management Area (DWSMA). Proper wellhead protection planning in the Part 2 WHPP amendment will ensure that the City can manage surface land uses within the DWSMA so as to minimize the potential for those land uses to impact the City's drinking water quality.

Barr Engineering's understanding of the project and the scope of professional consulting services for preparing the amendment of Part 2 of the City's Wellhead Protection Plan (WHPP) are described in the following paragraphs.

The development of Part 2 of a WHPP must be done according to the Wellhead Protection Rules. Per the rules, Part 2 of the WHPP must include 1) an assessment of data elements relevant to the Plan, 2) an inventory and mapping of potential contaminant sources within the DWSMA that was delineated during development of Part 1 of the Plan, 3) a discussion of issues, problems, and opportunities associated with the DWSMA and the source water aquifers, 4) an assessment of the impact on the public water supply wells of potential future changes in the DWSMA, 5) identification of goals for the Wellhead Protection Program, 6) development of management strategies for addressing the identified potential contaminant sources, 7) a wellhead protection program evaluation process, and 8) an emergency water supply contingency plan.

It is our understanding that the Minnesota Department of Health (MDH) held Scoping Meeting No. 2 with City staff on March 28, 2019. The requirements for Part 2 of the WHPP amendment are outlined in the

April 4, 2019 Scoping 2 Decision Notice from the MDH that you provided to John Greer of Barr via email. The Scoping 2 Decision Notice specifies that the Part 2 WHPP amendment must be submitted to MDH by October 6, 2019.

Scope of Work Tasks and Assumptions

Barr Engineering's proposed scope of work is presented below.

Task 1: Wellhead Protection Plan Part 2 Preparation

Barr Engineering will prepare, in consultation with the City, an initial draft of the Part 2 WHPP amendment to meet the requirements of the Wellhead Protection Rules. When complete, the draft plan will be sent to you for City review. After addressing any City comments on the initial draft, Barr will provide a copy of the draft Part 2 WHPP amendment via electronic means (i.e., email or ftp site) to the MDH for preliminary review.

The Wellhead Protection Rules require that potential contaminant sources within a DWSMA be inventoried. Types of potential contaminant sources that must be inventoried depend upon the aquifer vulnerability classification(s) within the DWSMA. It is our understanding that the aquifer vulnerability classification in both of the City's newly delineated DWSMAs is "moderate". It is also our understanding that the MDH will require that potential contaminant sources within the DWSMA be inventoried according to Department guidance for DWSMAs with this aquifer vulnerability classification. Identification and verification of these locations is known as a potential contaminant source inventory (PCSI). It is possible that not all potential contaminant source types that MDH guidance identifies to be inventoried are present in the DWSMAs.

After the draft Part 2 WHPP amendment, including PCSI, is completed and reviewed by the City, it will be submitted to the MDH for preliminary review. Barr Engineering will review any MDH comments that come from the Department's preliminary review of the draft Part 2 WHPP amendment. Typically, any comments we receive on a draft Part 2 WHPP can be easily addressed. We will discuss the MDH comments with City staff and make any necessary changes to the draft that result from MDH comments. Per your discussion with John Greer, Barr Engineering will, on behalf of the City, send copies of the draft Part 2 Plan to local governmental units (LGUs) whose jurisdictions overlaps the DWSMAs. Please note that the Wellhead Protection Rules require that the LGUs be given 60 days to review the draft Part 2 Plan.

Barr Engineering will address, in consultation with the City, any comments received from the LGUs and prepare a final Part 2 WHPP amendment. Following the LGU review and prior to submittal of the Part 2 WHPP amendment to the MDH for approval, the City must hold a Public Hearing on the WHPP. We have assumed that John Greer of Barr Engineering will attend the Public Hearing to discuss the Part 2 WHPP amendment.

Per your discussion with John Greer, Barr will submit the Part 2 WHPP amendment to the MDH for approval on behalf of the City. We will provide the City with one electronic copy of the final Part 2 WHPP amendment. Paper copies of the final Part 2 Plan amendment can be provided for City use at an additional cost.

Additional assumptions:

- We have assumed that John Greer of Barr Engineering will provide to you via email a list of data needed from the City to complete the Part 2 WHPP amendment.
- We have assumed one meeting with City staff to discuss potential management actions for inclusion in the Part 2 WHPP amendment.
- We have assumed that a meeting with MDH staff to discuss any comments arising from the preliminary review will not be necessary. If such a meeting is necessary we will attend on a time and expenses basis over and above our budget for this work scope.

Task 2: Project Administration

This task includes completion of necessary project administrative tasks.

Project Schedule

We have assumed that the plan amendment development and submittal tasks identified above will be completed prior to the October 6, 2019 submittal deadline. This schedule assumes the following: 1) all data requested from the City will be provided within one week of the request, 2) all data requested from county, state, and federal agencies for the PCSI will be received within two weeks of when the request is made, 3) City review of the draft Part 2 WHPP amendment will be completed within 14 days of the date the City receives the draft, 4) preliminary MDH review of the draft Part 2 WHPP amendment will be completed within two weeks of the date the draft is provided to the Department, and 5) the required public hearing will be held at the September 24, 2019 City Council meeting.

Project Cost

Barr Engineering will complete the scope of work presented above for a cost not to exceed $25,100.

Contract Terms

The scope of professional consulting services we will provide for preparing the amendment of Part 2 of the Ramsey WHPP is described above. We propose to complete the work under the terms of the attached agreement and fee schedule.

We understand that you would have the authority to direct us. We would direct communications to the City at the address on this letter. City direction to Barr would be provided to John Greer at the letterhead address, via phone, or via email.

Thank you for the opportunity to provide you this proposal. If you have any questions regarding our proposal, please feel free contact me (952-832-2857 or bobermeyer@barr.com) or John Greer (952-832-2691 or jgreer@barr.com), the project manager who will work with you on this project.

If the above scope of work and attached terms are satisfactory, please sign this letter in the space provided and return a copy to us. This Agreement will be open for acceptance until April 26, 2019, unless earlier withdrawn by us.

Sincerely yours,

Barr Engineering Co.

By _____
Its Vice President

Accepted this _____ day of _____, 20___

City of Ramsey

By _____

Its _____

Attachments

Standard Terms—Professional Services

STANDARD TERMS—PROFESSIONAL SERVICES

Our Agreement with you consists of the accompanying letter or other authorization, Work Orders, and these Standard Terms – Professional Services.

Section 1: Our Responsibilities

1.1 We will provide the professional services ("Services") described in this Agreement. We will use that degree of care and skill ordinarily exercised under similar circumstances by reputable members of our profession practicing in the same locality.

1.2 We will select the means, methods, techniques, sequences, or procedures used in providing our Services. If you direct us to deviate from our selections, you agree to hold us harmless from claims, damages, and expenses arising out of your direction.

1.3 We will acquire all licenses applicable to our Services and we will comply with applicable law.

1.4 Our duties do not include supervising your contractors or commenting on, supervising, or providing the means and methods of their work unless we accept any such duty in writing. We will not be responsible for the failure of your contractors to perform in accordance with their undertakings.

1.5 We will provide a health and safety program for our employees, but we will not be responsible for contractor, job, or site health or safety unless we accept that duty in writing.

1.6 Estimates of our fees or other project costs will be based on information available to us and on our experience and knowledge. Such estimates are an exercise of our professional judgment and are not guaranteed or warranted. Actual costs may vary. You should add a contingency.

1.7 The information you provide to us will be maintained in confidence except as required by law.

Section 2: Your Responsibilities

2.1 You will provide access to property.

2.2 You will provide us with prior reports, specifications, plans, changes in plans, and other information about the project that may affect the delivery of our Services. You will hold us harmless from claims, damages, and related expenses, including reasonable attorneys' fees, involving information not timely called to our attention or not correctly shown on documents you furnish to us.

2.3 You agree to provide us with information on contamination and dangerous and hazardous substances and processes we may encounter in performing the Services and related emergency procedure information.

2.4 You agree to hold us harmless as to claims that we are an owner, operator, generator, transporter, treater, storer, or a disposal facility within the meaning of any law governing the handling, treatment, storage, or disposal of dangerous or hazardous materials.

2.5 Site remediation services may involve risk of contamination of previously uncontaminated air, soil, or water. If you are requesting that we provide services that include this risk, you agree to hold us harmless from such contamination claims, damages, and expenses, including reasonable attorneys' fees, unless and to the extent the loss is caused by our negligence.

2.6 You agree to make disclosures required by law. If we are required by law or legal process to make such disclosures, you agree to hold us harmless and indemnify us from related claims and costs, including reasonable attorneys' fees.

Section 3: Reports and Records

3.1 We will retain analytical data relating to the Services for seven years and financial data for three years.

3.2 Monitoring wells are your property and you are responsible for their permitting, maintenance and abandonment unless we accept that duty in writing. Samples remaining after tests are conducted and field and laboratory equipment that cannot be adequately cleansed of contaminants are your property. They will be discarded or returned to you, at our discretion, unless within 15 days of the report date you give written direction to store or transfer the materials at your expense.

3.3 Our reports, notes, calculations, and other documents, and our computer software, programs, models, and data are instruments of our Services, and they remain our property, subject to a license to you for your use in the related project for the purposes disclosed to us. You may not use or transfer such information and documents to others for a purpose for which they were not prepared without our written approval. You agree to indemnify and hold us harmless from claims, damages, and expenses, including reasonable attorneys' fees, arising out of any unauthorized transfer or use.

3.4 Because electronic documents may be modified intentionally or inadvertently, you agree that we will not be liable for damages resulting from change in an electronic document occurring after we transmit it to you. In case of any difference or ambiguity between an electronic and a paper document, the paper document shall govern. When accepting document transfer in electronic media format, you accept exclusive risk relating to long-term capability, usability, and readability of documents, software application packages, operating systems, and computer hardware.

3.5 If you do not pay for the Services in full as agreed, we may retain reports and work not yet delivered to you and you agree to return to us our reports and other work in your possession or under your control. You agree not to use or rely upon our work for any purpose until it is paid for in full.

Section 4: Compensation

4.1 You will pay for the Services as agreed or according to our then current fee schedules if there is no other written agreement as to price. An estimated cost is not a firm figure unless stated as such and you should allow for a contingency in addition to estimated costs.

4.2 You agree to notify us of billing disputes within 15 days and to pay undisputed portions of invoices within 30 days of invoice date. For balances not paid under these terms, you agree to pay interest on unpaid balances beginning 10 days after invoice date at the rate of 1.5% per month, but not to exceed the maximum rate allowed by law.

4.3 If you direct us to invoice another, we will do so, but you agree to be responsible for our compensation unless you provide us with that person's written acceptance of the terms of our Agreement and we agree to extend credit to that person.

4.4 You agree to compensate us in accordance with our fee schedule if we are asked or required to respond to legal process arising out of a proceeding to which we are not a party.

4.5 If we are delayed by factors beyond our control, or if the project conditions or the scope of work change, or if the standards change, we will receive an equitable adjustment of our compensation.

4.6 In consideration of our providing insurance to cover claims made by you, you hereby waive any right of offset as to payment otherwise due us.

Section 5: Disputes, Damage, and Risk Allocation

5.1 Each of us will exercise good faith efforts to resolve disputes without litigation. Such efforts will include a meeting attended by each party's representative empowered to resolve the dispute. Disputes (except collections) will be submitted to mediation as a condition precedent to litigation.

5.2 We will not be liable for special, incidental, consequential, or punitive damages, including but not limited to those arising from delay, loss of use, loss of profits or revenue, loss of financing commitments or fees, or the cost of capital. Each of us waives against the other and its subcontractors, agents, and employees all rights to recover for losses covered by our respective property/casualty or auto insurance policies.

5.3 We will not be liable for damages unless you have notified us of your claim within 30 days of the date of your discovery of it and unless you have given us an opportunity to investigate and to recommend ways of mitigating damages, and unless suit is commenced within two years of the earlier of the date of injury or loss and the date of completion of the Services.

5.4 For you to obtain the benefit of a fee which includes a reasonable allowance for risks, you agree that our aggregate liability will not exceed the fee paid for our services, but not less than $50,000, and you agree to indemnify us from all liability to others in excess of that amount. If you are unwilling to accept this allocation of risk, we will increase our aggregate liability to $100,000 provided that, within 10 days of the date of our Agreement, you provide payment in an amount that will increase our fees by 10%, but not less than $500, to compensate us for the greater risk undertaken. This increased fee is not the purchase of insurance.

5.5 If you fail to pay us within 60 days following invoice date, we may consider the default a total breach of our Agreement and, at our option, we may terminate all of our duties without liability to you or to others.

5.6 If we are involved in legal action to collect our compensation, you agree to pay our collection expenses, including reasonable attorneys' fees.

5.7 The law of the state in which the project site is located will govern all disputes. Each of us waives trial by jury. No employee acting within the scope of employment will have any individual liability for his or her acts or omissions and you agree not to make any claim against individual employees.

Section 6: Miscellaneous Provisions

6.1 We will provide a certificate of insurance to you upon request. Any claim as an Additional Insured will be limited to losses caused by our sole negligence.

6.2 This Agreement is our entire agreement, and it supersedes prior agreements. Only a writing signed by an authorized representative for each of us making specific reference to the provision modified may modify it.

6.3 Neither of us will assign this Agreement without the written approval of the other. No other person has any rights under this Agreement.

6.4 Only a writing may terminate this Agreement. We will receive an equitable adjustment of our compensation as well as our earned fees and expenses if our work is terminated prior to completion.

6.5 We will not discriminate against any employee or applicant for employment because of race, color, creed, ancestry, national origin, sex, religion, age, marital status, affectional preference, disability, status with regard to public assistance, membership or activity in a local human-rights commission, or status as a specially disabled, Vietnam-era, or other eligible veteran. We will take affirmative action to ensure that applicants are considered, and employees are treated during their employment, without regard to those factors. Our actions will include, but are not limited to notifications, hiring, promotion or employment upgrading, demotion, transfer, recruitment or recruitment advertising, layoffs or terminations, rates of pay and other forms of compensation, and selection for training or apprenticeship.

6.6 Neither we nor you, including our officers, employees, and agents, are agents of the other, except as agreed in writing. Except as agreed in writing, nothing in this Agreement creates in either party any right or authority to incur any obligations on behalf of, or to bind in any respect, the other party. Nothing contained herein will prevent either party from procuring or providing the same or similar products or services from or to any third person, provided that there is no breach of any obligations pertaining to confidentiality.

End of Standard Terms

Fee Schedule—2019

Rev. 12/29/18

Description	Rate* (U.S. dollars)
Principal	$145-295
Consultant/Advisor	$155-250
Engineer/Scientist/Specialist III	$125-150
Engineer/Scientist/Specialist II	$95-120
Engineer/Scientist/Specialist I	$65-90
Technician III	$125-150
Technician II	$95-120
Technician I	$50-90
Support Personnel II	$95-150
Support Personnel I	$50-90

Rates for litigation support services will include a 30% surcharge.

A ten percent (10%) markup will be added to subcontracts for professional support and construction services to cover overhead and insurance surcharge expenses.

Invoices are payable within 30 days of the date of the invoice. Any amount not paid within 30 days shall bear interest from the date 10 days after the date of the invoice at a rate equal to the lesser of 18 percent per annum or the highest rate allowed by applicable law.

Meals will be reimbursed on a per diem basis. For travel destinations within the continental U.S. (CONUS) the per diem rate will be as published by the U.S. Internal Revenue Service (IRS) based on the High-Low method. For travel destinations outside the CONUS list, the per diem rate will be as published by the U.S. Department of State for foreign per diem rates. Full day per diem rates will be pro-rated on travel days.

All other reimbursable expenses including, but not limited to, costs of transportation, lodging, parking, postage, shipping and incidental charges will be billed at actual reasonable cost. Mileage will be billed at the IRS-allowable rate.

Materials and supplies charges, printing charges, and equipment rental charges will be billed in accordance with Barr's standard rate schedules.

Principal category includes consultants, advisors, engineers, scientists, and specialists who are officers of the company.

Consultant/Advisor category includes experienced personnel in a variety of fields. These professionals typically have advanced background in their areas of practice and include engineers, engineering specialists, scientists, related technical professionals, and professionals in complementary service areas such as communications and public affairs.

Engineer/Scientist/Specialist categories include registered professionals and professionals in training (e.g. engineers, geologists, and landscape architects), and graduates of engineering and science degree programs.

Technician category includes CADD operators, construction observers, cost estimators, data management technicians, designers, drafters, engineering technicians, interns, safety technicians, surveyors, and water, air, and waste samplers.

Support Personnel category includes information management, project accounting, report production, word processing, and other project support personnel.

*Rates do not include sales tax on services that may be required in some jurisdictions.

resourceful. naturally.
engineering and environmental consultants

BARR

July 17, 2019

Mr. Scott Schulte, Chair, Anoka County Board of Commissioners
Mayor Phil Rice, city of Anoka
Mr. Chris Lord, Anoka Conservation District
Mr. Bar Biernat, Anoka County Public Health and Environmental Services
Mr. Todd Haas, Chair, Lower Rum River WMO
Dr. John Clark, Ph.D., Water Supply Planning, Metropolitan Council
Mr. John Freitag, Principal Planner, Minnesota Department of Health

Re: Draft Ramsey Part 2 Wellhead Protection Plan Amendment.

This letter is being sent to you on behalf of the city of Ramsey. The city of Ramsey is in the process of amending the wellhead protection plan for its drinking water supply wells. Enclosed on a memory stick for your review and comment is the completed Part 2 Draft Report for this system as required in the MN Wellhead Protection Rule (4720.5350, subpart 1). This portion of the Plan includes information pertaining to:

1. The inventory of potential contaminants of concern within the Drinking Water Supply Management Area (DWSMA);
2. The data that was considered in this portion of the plan;
3. Issues, problems, and concerns within the DWSMA;
4. Goals, objectives, and action strategies to address the issues and concerns within the DWSMA;
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 throughout the 60-day comment period. Please send your written comments to Bruce Westby, PE at city of Ramsey, 7550 Sunwood Dr. NW, Ramsey, Minnesota 55303 by September 17, 2019.

Consistent with the Wellhead Protection Rule (4720.5350, subpart 4) a Public Hearing has been scheduled on September 24, 2019 at 7:00 pm in the Ramsey City Council Chambers at 7550 Sunwood Drive NW, Ramsey, MN to discuss issues and address all comments related to the enclosed document.

The city of Ramsey looks forward to your participation.

Sincerely,

John Greer, PG

c: John Freitag, MDH
Bruce Westby, city of Ramsey (w/o encl.)

Wellhead and Source Water Protection – Part 2: Wellhead Protection Plan Amendment

Prepared for

City of RAMSEY

July 2019

4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
Phone: 952.832.2600

Wellhead and Source Water Protection – Part 2: Wellhead Protection Plan Amendment

July 2019

Contents

List of Tables

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List of Appendices

Public Water Supply Profile

The following persons are the contacts for the Ramsey Wellhead Protection Plan:

Public Water Supply Contact

Grant Riemer
Public Works Superintendent
7550 Sunwood Dr. NW
Ramsey, Minnesota 55303
Telephone: 763-427-8254
email: griemer@cityoframsey.com

Wellhead Protection Manager

Bruce Westby, PE
City Engineer
7550 Sunwood Dr. NW
Ramsey, Minnesota 55303
Telephone: 763-433-9825
email: bwestby@cityoframsey.com

Wellhead Protection Consultant

John Greer, PG
Barr Engineering Company
4300 MarketPointe Drive
Suite 200
Minneapolis, Minnesota 55435
Telephone: 952-832-2600
Fax: 952-832-2601
email: jgreer@barr.com

General Information

UNIQUE WELL NUMBER(S) Primary: 161441, 416183, 580303, 580313, 593672, 743832, 743833

PUBLIC WATER SUPPLY ID # 1020035

SIZE OF POPULATION SERVED 13,720 (2017 estimate)

COUNTY Anoka

Documentation List

Step	Date Performed
Scoping Meeting 2 Held (4720.5340, subp. 1)	March 28, 2019
Scoping 2 Decision Notice Received (4720.5340, subp. 2)	April 8, 2019
Remaining Portion of Plan Submitted to Local Units of Government (LUGs) (4720.5350)	July 17, 2019
Review Received From Local Units of Government (4720.5350, subp. 2)	July 18, 2019 to September 17, 2019
Review Comments Considered (4720.5350, subp. 3)	July 18, 2019 to September 20, 2019
Public Hearing Conducted (4720.5350, subp.4)	September 24, 2019
Remaining Portion WHP Plan Submitted (4720.5360, subp. 1) **NOTE TO REVIEWERS: DATE WILL BE ADDED BEFORE SUBMITTAL**	September XX, 2019
Final WHP Plan Review Received (4720.5360, subp. 4)	

Certification

I hereby certify that this plan, document, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Geologist under the laws of the state of Minnesota.

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Date

Acronyms

Acronym	Description
DWSMA	Drinking Water Supply Management Area
LUST	Leaking Underground Storage Tank
MGD	Million Gallons per Day
MGY	Million Gallons per Year
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MGS	Minnesota Geological Survey
MnOPS	Minnesota Office of Pipeline Safety
MPCA	Minnesota Pollution Control Agency
PCSI	Potential Contaminant Source Inventory
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Plan

Executive Summary

The Wellhead and Source Water Protection Plan (the Plan) for the City of Ramsey (the City) addresses the eight municipal water supply wells operated by the City. The City's previous Wellhead Protection Plan was approved by the Minnesota Department of Health in 2010. This Plan amendment was prepared in accordance with the applicable portions of the State of Minnesota Wellhead Protection Rules (Minnesota Rules 4720.5100 through 4720.5590) due to the age of the Plan.

The City is a member of the Anoka County Municipal Wellhead Protection Group (ACMWPG). As such, the City has the opportunity to work with surrounding communities and Anoka County to protect the source water aquifer, when mutually beneficial.

The City's municipal water supply system includes eight municipal water supply wells: Wells 1, 2, 3, 4, 5, 6, 7, and 8. Wells 1, 3, 4, 5, 6, 7, and 8 are used as primary water supply wells. Well 2 is used as a seasonal well on an as needed basis to meet peak demands. All eight wells pump from the Tunnel City Group-Wonewoc Sandstone aquifer. In accordance with Minnesota Rules 4720.5550, Ramsey Wells 6 and 7 are classified as not vulnerable to contamination from the surface while wells 1, 2, 3, 4, 5, and 8 are classified as vulnerable to contamination.

This Plan amendment consists of two parts. In Part 1 of the Plan amendment, wellhead protection areas (WHPAs) for the City's water supply wells were delineated as were the associated drinking water supply management areas (DWSMAs). Two DWSMAs were delineated for Ramsey. These DWSMAs encompass the WHPAs for the following Ramsey water supply wells:

- East – Wells 1 and 2
- West – Wells 3, 4, 5, 6, 7, and 8

As shown on Figure 1, the West DWSMA is contained entirely within the Ramsey city limits. A portion of the East DWSMA extends into the city of Anoka. The vulnerability of the source water aquifer in the DWSMAs is classified as Moderate based on the geologic conditions in and around the City's DWSMAs and water quality data for the City's wells. The Part 1 WHPP amendment was approved by the Minnesota Department of Health in January 2019. A public information meeting on the Part 1 WHPP amendment was held on March 19, 2019.

This document comprises Part 2 of the Plan amendment and includes the following information:

- A review of data elements identified by the Minnesota Department of Health as applicable to the DWSMAs.
- Results of an inventory of potential contaminant sources within the DWSMAs.
- A review of changes, issues, problems, and opportunities related to the public water supply and the identified potential contaminant sources.
- A discussion of potential contaminant source management strategies and the goals, objectives, and action plans associated with these management strategies.

- A review of the Wellhead and Source Water Protection evaluation program and Ramsey's alternative water supply contingency strategy.

Potential contaminant sources identified in the DWSMAs include non-municipal wells, properties with storage tanks (including properties that had leaking underground storage tanks), chemical storage sites, properties that where Class V disposal wells may be present or may have been present, properties where contaminant spills have occurred, and brownfields sites.

The goals and objectives of this WHPP will focus on reducing the potential contaminant pathways to the source water aquifers that may be provided by private wells, and educating property owners and water supply users and working with the neighboring jurisdictions, to the extent practicable, to ensure proper management of the portions of the DWSMAs within the neighboring jurisdictions.

The following goals have been identified for implementation of this WHPP:

- The City will work to maintain or improve the current level of water quality so that the municipal water supply will continue to meet or exceed all applicable state and federal water quality standards.
- Work with other cities in the ACMWPG to protect the source water aquifer.
- The City will provide information and promote activities that protect the source water aquifer that provides water to the municipal system. This will include increasing public awareness of the Wellhead and Source Water Protection Program and groundwater-related issues, and management of the identified potential contaminant sources within the DWSMAs.
- The City will continue to collect data to support future wellhead and source water protection efforts.

Actions identified to accomplish these goals include the following:

- Wells
    - Promoting proper management of existing active wells in the DWSMAs
    - Encouraging the proper sealing of all unused wells within the DWSMAs
    - Identification of new high capacity wells in or near the DWSMAs
- Potential contaminant source properties
    - Notifying owners of potential Class V well properties of requirements related to Class V wells
    - Encouraging proper handling of chemicals/wastes
    - Encouraging proper operation and maintenance of storage tanks
    - Tracking the status of identified brownfields sites in the DWSMAs
    - Updating information on potential contaminant sources in the DWSMAs as new locations are identified. This will include obtaining information on potential contaminant sources in the DWSMAs from the regulating agencies to maintain an up-to-date potential contaminant source database for the DWSMAs and allow timely recognition of potential issues that could affect the Ramsey municipal water supply or DWSMAs.

- Public education
  - Distribution of the Ramsey Annual Water Quality Report for the water supply system,
  - Posting Wellhead Protection Program information on the City of Ramsey website (http://www.ci.ramsey.mn.us/) and provide a link to the ACMWPG's *Know the Flow* website (http://www.knowtheflow.us/) on the City's website,
  - Inclusion of wellhead and source water protection in the City's planning process,
- Continued data collection
  - Recording static and pumping water levels in the Ramsey water supply wells,
  - Monitoring water levels in the City's observation well network,
  - Collection of additional local geologic and hydrogeologic data as it becomes available from public sources or from City-sponsored projects.

1.0 Introduction

1.1 Background

The City of Ramsey (City) currently operates seven primary municipal water supply wells: Wells 1, 3, 4, 6, 7, and 8. Well 2 is used seasonally, as needed, during high demand periods. These wells pump from the Tunnel City Group-Wonewoc Sandstone aquifer. Minnesota unique well number along with well construction, status, aquifer, and well vulnerability classification for each of Ramsey's municipal water supply wells is presented in Table 1. Well locations and Drinking Water Supply Management Area (DWSMA) locations are shown on Figure 1. Minnesota Department of Health (MDH) well records for all the Ramsey municipal wells are presented in Appendix A.

The previous Ramsey Wellhead Protection Plan (WHPP) Parts 1 and 2 were prepared in 2008 and 2009, respectively. The MDH issued final approval of the previous Part 2 WHPP in 2010. In accordance with the Minnesota Wellhead Protection Rules (Minnesota Rules 4720.5100 through 4720.5590), amendment of the City's WHPP was initiated based on the age of the Plan. The Part 1 WHPP amendment (MDH, 2018) was approved by the Minnesota Department of Health (MDH) in January 2019 (MDH, 2019a). A public information meeting on the Part 1 WHPP amendment was held on March 19, 2019.

In the Part 1 WHPP amendment, two separate DWSMAs were delineated for Ramsey that encompassed the wellhead protection areas (WHPAs) for the Ramsey water supply wells. In addition to the delineation of the WHPAs and the DWSMAs, Part 1 of the WHPP amendment includes an assessment of the vulnerability to contamination of the Ramsey municipal wells and the source water aquifers in the associated DWSMAs. In accordance with Minnesota Rules 4720.5550, Wells 1, 2, 3, 4, 5, and 8 are classified as vulnerable to contamination from the surface and Wells 6, and 7 are classified as not vulnerable (see Table 1). In the Part 1 amendment report, the vulnerability to contamination of the uppermost source water aquifer within the DWSMAs was identified as Moderate (MDH, 2018). Figure 1 shows the aquifer vulnerability in the Ramsey DWSMAs. The Ramsey Part 1 WHPP amendment is presented in Appendix B.

1.2 Description of the Public Water Supply System

The City is located in Anoka County. Ramsey currently has seven primary water supply wells and one seasonal-use wells in the municipal water supply and distribution system for Public Water Supply #1020035. Locations of the wells are shown on Figure 1 and general construction details for the Ramsey municipal wells are summarized in Table 1. Copies of the MDH well records for the Ramsey municipal wells are presented in Appendix A

The 2010 census indicated that Ramsey had a population of 23,668. In 2017 the City's estimated population was 25,581 and the estimated population served by the municipal water supply system was 13,720 (Ramsey, 2018a). The Metropolitan Council's preliminary estimate of the 2018 population of Ramsey is 27,051. The City's draft Water Supply Plan (Ramsey, 2018a) projects that the City's water supply

system will serve 13,921 people in 2020 and 22,987 in 2030. The draft Water Supply Plan projects the City's total population in 2030 will be 33,350.

The projected 2030 average day and maximum day (the largest daily water use in a given year) water demands shown in the City's Water Supply Plan (Ramsey, 2018a) are approximately 2,090 gallons per minute (gpm) [3.01 million gallons per day (MGD)] and 6,060 gpm (8.73 MGD), respectively. Current daily water demand (based on the period 2013-2017) averages approximately 1.7 MGD. Maximum day demand ranged from 4.4 MGD to 5.4 MGD in the period 2013-2017 (e.g., Ramsey, 2018). The current permitted instantaneous pumping rate for the system is 8,200 gpm and the permitted annual volume is 850 MG.

The City currently adds chlorine and fluoride to the water supply at the pumphouses associated with the wells (Ramsey, 2018a). In addition, ortho and polyphosphates are also added to the pumped water at the pumphouses to inhibit corrosion and sequester iron and manganese. The City currently has four pumphouses in which water is treated prior to entering the distribution system. Water from the City's wells is routed to the pumphouses for treatment as follows:

- Pumphouse 1 – water from Wells 1 and 2
- Pumphouse 2 – water from Wells 3 and 4
- Pumphouse 3 – water from Wells 5 and 6
- Pumphouse 4 – water from Wells 7 and 8

The City currently has the capacity to treat up to 11 MGD.

Ramsey currently has three elevated water storage facilities. These facilities have a combined storage capacity of four million gallons. Construction of additional water storage facilities is not currently planned (e.g., Ramsey, 2018).

As shown in MDH (2018), 2011 through 2015 pumping information from the City was used in the development of pumping rates for use in delineating the WHPAs. Annual volume of water pumped by each of the City's municipal water supply wells during the period 2011 through 2015 is shown in Table 2.

1.3 DWSMAs

The DWSMAs delineated in the Part 1 WHPP amendment encompass the 10-year groundwater time of travel WHPAs around the City's wells. As shown on Figure 1, two Drinking Water Supply Management Areas (DWSMAs) have been delineated for Ramsey (MDH, 2018). These DWSMAs encompass Wellhead Protection Areas (WHPAs) for the following Ramsey water supply wells:

- West – Wells 3, 4, 5, 6, 7, and 8
- East – Wells 1 and 2

The West DWSMA is found in Township 32N, Range 25W, Sections 20, 21, 22, 27, 28, and 29 (Figure 1). The East DWSMA lies in Township 32N, Range 25W, Sections 25 and 36 (Figure 1).

As shown on Figure 1, the West DWSMA is contained entirely within the Ramsey city limits. The East DWSMA extends beyond the Ramsey city limits into Anoka.

In the Part 1 amendment report, the aquifer vulnerability within each of the DWSMAs was classified as Moderate (Figure 1).

2.0 Identification and Assessment of Data Elements

The Minnesota Wellhead Protection Rules specify data elements that must be addressed in wellhead protection plans. For the WHPP amendment, MDH staff met with City staff on two occasions to discuss the data elements that are specified in the Minnesota Rules 4720.5400. Results of these scoping meetings were transmitted to the City via two Scoping Decisions dated May 10, 2017 (MDH, 2017) and April 4, 2019 (MDH, 2019b).

The first Scoping Meeting was held on March 23, 2017. At this meeting, the data elements related to delineation of the WHPAs and DWSMAs and assessment of well and aquifer vulnerability were discussed. The second Scoping Meeting was held on March 28, 2019. At this meeting, the data elements required to support development of Part 2 of the WHPP amendment (this document) which identifies potential contaminant sources within the DWSMAs and identifies management strategies to help safeguard the municipal water supply from identified potential contaminants were discussed. An assessment of these data elements, as required by the Minnesota Wellhead Protection Rules, is presented in Appendix C.

3.0 Inventory of Potential Contaminant Sources

In Part 1 of this WHPP amendment, WHPAs for the Ramsey water supply wells and the associated DWSMAs were delineated. The DWSMAs encompass the 10-year groundwater time of travel WHPAs around the City's wells (MDH, 2018). As discussed above in Section 1.3, two DWSMAs were delineated for the City's wells.

As shown on Figure 2 and in Appendix C, the current land use (i.e., year 2016 data from the Metropolitan Council) data indicates that numerous land uses are found within the DWSMAs. Land uses in the DWSMAs that cover more than one percent or more of the area in the DWSMAs include Residential of various types, Undeveloped land, Park/Recreational/Preserve, Retail and Other Commercial, Agricultural, Major Highways, and Open Water.

Per the April 4, 2019 Scoping 2 Decision Notice, the City performed a Potential Contaminant Source Inventory (PCSI) within the DWSMAs.

3.1 Inventory Process

At Scoping Meeting No. 2, the types of potential contaminant sources that must be inventoried in the Ramsey DWSMAs Area were identified. As discussed in Appendix C, sources of data accessed for the potential contaminant source inventory include Minnesota Department of Health (MDH), Minnesota Department of Natural Resources (MDNR), Minnesota Department of Public Safety (DPS), Minnesota Geological Survey (MGS), Minnesota Office of Pipeline Safety (MnOPS), Minnesota Pollution Control Agency (MPCA), Metropolitan Council, Minnesota Geospatial Information Office (MGIO), Minnesota Department of Transportation (MnDOT), and U.S. Environmental Protection Agency (USEPA) databases.

Aquifer vulnerability in the Ramsey DWSMAs is classified as Moderate (Figure 1). The potential contaminant source types that must be inventoried vary based on the aquifer vulnerability classification. In areas where the aquifer vulnerability is classified as Moderate the types of potential contaminant point sources inventoried include above-ground and underground storage tanks, leaking underground storage tank (LUST) locations, potential Class V well locations (Class V wells are wells or other structures that facilitate injection of wastes into the subsurface), pipeline facilities, chemical storage locations, spills/potential contamination sites, and wells.

The first step in the inventory was to determine if there were any potential contaminant sources in the Inner Wellhead Management Zone (IWMZ) or the Emergency Response Zone (ERZ) around each of the Ramsey wells. The IWMZ is defined as the area within a 200-foot radius of each municipal well. The most recent IWMZ inventory for each of the Ramsey municipal wells is presented in Appendix C. The ERZ is defined as the area within which the travel time of groundwater to a municipal well is one year or less. The inventory was then expanded out to the boundaries of the DWSMAs.

3.2 Inventory Results

A more detailed discussion of the potential contaminant sources within the DWSMAs is presented in Appendix C. The inventory results are summarized in Table **3**.

All identified potential contaminant source locations within the limits of the DWSMAs were verified during preparation of this Plan amendment. As part of the verification process, locations identified during the PCSI that mapped incorrectly were corrected to the extent possible based on available data. Verification procedures used included matching mapped locations with addresses on MDH Well Records or State/County-issued permits or in County/State/Federal databases, published business addresses, property parcel addresses, local knowledge of City staff, or information from City files (note that not all verification procedures were used for each type of potential contaminant source). Verified locations are identified in the tables in Appendix C. New information developed on contaminant sources in the future will be verified as they are discovered as part of the WHPP implementation.

As shown in Table 3, potential contaminant sources were assigned a priority based on the relative risk they pose to the public water supply. The evaluation of risk related to a potential contaminant source type is based on the locations of potential contaminant sources of that type and the aquifer vulnerability classification. Higher priority was assigned to those potential contaminant sources that would pose the highest risk to the municipal water supply should a contaminant release occur.

4.0 Impact of Changes to the Public Water Supply Wells

In accordance with the requirements of Minnesota Rules 4720.5220, anticipated changes in the physical environment, land use, surface water, and groundwater in the DWSMAs within the next ten years and the impact of these changes on the source water aquifers are discussed in this section.

4.1 Potential Changes Identified

4.1.1 Physical Environment

As shown on Figure 2, approximately 31% of the area in the DWSMAs is currently undeveloped. By 2030, the Metropolitan Council projects that all the land within the DWSMAs will be developed (see Figure 3). As discussed elsewhere in this Plan, the Metropolitan Council's preliminary estimate of the 2018 population of Ramsey is 27,051. The City's draft Water Supply Plan (Ramsey, 2018a) projects that the City's water supply system will serve 13,921 people in 2020 and 22,987 in 2030. The draft Water Supply Plan projects the City's total population in 2030 will be 33,350. These projections suggest that the City will experience significant growth by 2030.

Changes in land use resulting from the projected growth are not anticipated to result in land uses different than found elsewhere in the DWSMAs and would not be expected to significantly affect the source water aquifer. Therefore, potential changes to the physical environment will likely not affect the management strategies for the Ramsey DWSMAs presented in this WHPP amendment.

The City's draft Water Supply Plan (Ramsey, 2018a) anticipates that additional pumping capacity will need to be added to the water supply system in 2023, based on current growth projections. In addition, the City's Comprehensive Water System Study Update (Bolton & Menk, 2017) also anticipates a new well being added to the system in 2028. It is anticipated that new wells would be installed in the Tunnel City-Wonewoc aquifer. The installation and operation of one or more new wells would require an assessment of whether the boundaries of the DWSMAs would need to be modified. This will be done when the City is directed to do so by the MDH and may require the assistance of the Wellhead Protection Consultant.

The West DWSMA is contained entirely within the Ramsey city limits. The East DWSMA extends into a portion of the city of Anoka. Locations of the Ramsey DWSMAs are shown on Figure 1.

4.1.2 Land Use

As indicated in the Metropolitan Council's System Statement for Ramsey (Metropolitan Council, 2015), The City's general geographic planning designation is Emerging Suburban. Current land uses in the Ramsey DWSMAs that cover more than one percent of the area in the DWSMAs include Residential of various types, Undeveloped land, Park/Recreational/Preserve, Retail and Other Commercial, Agricultural, Major Highways, and Open Water. Projected future land uses within the City are anticipated to include many of the land uses currently present within the DWSMAs.

A land use map for the year 2016 and a projected year 2030 land use map are shown on Figures 2 and 3, respectively. Projected land use in Ramsey in 2030 is expected to be consistent with the City's current growth planning. Comparison of the year 2016 land use with the projected future land use indicates that, the currently undeveloped properties within the Ramsey DWSMAs will be developed.

All land uses anticipated during the next ten years within the DWSMAs are currently present in the areas covered by this WHPP. As a result, adjustments in the land use within the DWSMAs such as those projected for the year 2030 will be adequately addressed by the management strategies put forth in this WHPP.

4.1.3 Surface Water

There are surface water bodies and wetlands within the Ramsey DWSMAs. The City's Surface Water Management Plan (Ramsey, 2018b) along with City ordinances and zoning address these surface water bodies and wetlands. Ramsey's management of surface water bodies and wetlands is not expected to adversely affect the management strategies for the DWSMAs. Rather, the City's management of surface water bodies and wetlands is consistent with the objectives of this Plan.

The City is not aware of any plans to alter the course or location of any surface water bodies currently present within the DWSMAs in the next ten years.

4.1.4 Groundwater

As the population of Ramsey grows, water demand in the City will grow. As discussed above, the City anticipates adding additional pumping capacity to the water supply system in 2023. It is anticipated that new wells would pump from the Tunnel City-Wonewoc aquifer. Locations of a new well or wells have not yet been determined.

City staff inspect the municipal wells regularly. The MDH inspects all wells annually. This annual inspection includes sampling of all wells to ensure they comply with applicable regulatory standards. In addition, Ramsey uses a SCADA system to measure the volume of water pumped from a well, the instantaneous pumping rate for each well, and the water level (static or pumping) in each well.

The City monitors groundwater elevations in the Tunnel City-Wonewoc aquifer in the water supply wells and multiple observation wells. As shown in Ramsey (2018a), while there is some seasonal fluctuation the measured groundwater elevations do not show any long term, downward trends with time.

The City supports water conservation. The City has odd-even lawn sprinkling restrictions between 10:00 a.m. and 8:00 p.m. between Memorial Day and Labor Day. Per the city code, the following are exempted from the sprinkling ban: watering of newly sodded lawns for a period of two weeks, hand watering overseeded or spot repaired lawn areas, car washing, filling of children's swimming pools, and children playing in hose operated sprinklers or water toys. The City also requires rain sensors and back flow devices for irrigation systems for townhomes, multifamily residential properties, and commercial properties connected to the municipal water system. In addition, under Section 58-118 of the City Code the City can put in place restrictions on water use if it determines that a shortage of water threatens the

city. These restrictions may include limits on lawn and garden sprinkling, irrigation, car washing, air conditioning and other uses.

In the next ten years it is possible that new business or industrial developments in or near the Ramsey DWSMAs may seek to construct privately-owned high capacity wells completed in the City's source water aquifer. Such wells could potentially affect the DWSMA boundaries, depending on their location and pumping rate. At the time this Plan was prepared, the City was not aware of any proposed developments with plans for privately-owned high capacity wells within or near the DWSMAs.

Available information from the MDNR's Minnesota Permitting and Reporting System (MPARS) database indicates that there are 31 high capacity wells within a zone that includes the Ramsey DWSMAs and extends one mile beyond the DWSMA boundaries (this number does not include the eight Ramsey municipal supply wells). High capacity wells are defined as wells that pump more than 1,000,000 gallons per year or more than 10,000 gallons per day. Owners of these wells are required to obtain a groundwater appropriation permit from the MDNR. High capacity wells outside of the DWSMAs were identified because changes in operation of these wells could, potentially, affect the DWSMA boundaries. Of these 31 non-Ramsey municipal supply wells, 21 are used for pollution containment, four are used for some type of irrigation, four are used for municipal water supply, one is used for non-metallic processing, and one is used for HVAC. The high capacity wells in the DWSMAs and within one mile of the boundaries of the DWSMAs are shown on Figure 4 and summarized in Table 4. Additional information on these wells can be found in Appendix C.

Beyond the future operation of the Ramsey municipal wells and anticipated installation of two additional municipal water supply wells, no significant changes regarding groundwater use within or near the DWSMAs are anticipated to occur within the next ten years.

4.2 Impact of Changes

4.2.1 Water Use

Current daily water demand (based on the period 2013-2017) averages approximately 1.7 MGD. Maximum day demand (the largest daily water use in a given year) ranged from approximately 4.4 MGD to approximately 5.4 MGD in the period 2013-2017 (Ramsey, 2018a). The City's water distribution system is currently supplied with water from eight wells with a total permitted operating capacity of 8,200 gpm (11.8 MGD).

The City's draft Water Supply Plan (Ramsey, 2018a) projects the daily average water demand in 2030 will be approximately 3.01 MGD (approximately 2,090 gpm) and the 2030 maximum day water demand will be approximately 8.7 MGD (approximately 6,060 gpm).

As noted above, the City anticipates the addition of two wells to the water supply system by 2030. Addition of wells to the water supply system will require and assessment to determine if the boundaries of the DWSMAs will need to be modified. This will be done when the City is directed to do so by the MDH.

The placement of an additional high capacity well in or near the DWSMAs or significant changes in current groundwater appropriations by existing wells could have an impact on the source water aquifer and local water supplies. Such changes could also affect the Ramsey WHPAs and DWSMAs or change the static water levels in the wells. The City will work with the MDH Source Water Protection Unit and the MDNR to identify proposed high capacity wells in the vicinity of the Ramsey DWSMAs and provide interaction, to the extent practicable, with the proposed well owner to minimize potential problems.

To conserve valuable water resources and to mitigate, to the extent possible, drought impacts, the City limits use of water from the municipal water supply system for lawn and garden sprinkling and irrigation between Memorial Day and Labor Day to an odd-even schedule corresponding to property address. In addition, during this period no sprinkling is allowed between 10 a.m. and 8 p.m.

4.2.2 Influence of Existing Water and Land Government Programs and Regulations

As noted above, to conserve valuable water resources and address drought impacts, the City has controls on outdoor water usage. The City also provides water conservation information on their website and has a tiered billing structure for water use. These programs are designed to assist residents and businesses with water conservation strategies through incentives and educational information.

Ramsey's stormwater management program is described in the City's Surface Water Management Plan (Ramsey, 2018b). In addition, the MDH has prepared a guidance document that addresses siting of stormwater infiltration basins within DWSMAs. The City believes that their existing plan and MDH guidance are sufficient to address stormwater within the city limits.

County and city ordinances, the MDNR Division of Waters' appropriations permitting program, the MPCA's storage tank permitting program, the State of Minnesota Well Management and Drinking Water Supply Programs, State subsurface sewage treatment system (SSTS) rules, State rules regarding chemical handling and storage, and the U.S. EPA's rules regarding Class V wells will be relied upon for assistance in regulating the installation of new wells, the operation of wells, water appropriation permitting, the proper sealing of unused wells, proper operation and maintenance of SSTS, proper maintenance and operation of storage tanks, proper storage of chemicals, and addressing Class V wells. In addition, Ramsey is aware of and supports the low interest loan program offered by Anoka County Community Development and the Minnesota Department of Agriculture's Best Management Practices Program that can be used for maintenance and sealing of wells. Ramsey believes that the current level of regulations and oversight by various governmental entities are adequate to address these issues.

Land use control and land disturbing activities outside of the City of Ramsey will be governed by the local unit of government with jurisdiction in a particular area. This WHPP has been developed to protect the interests of the City of Ramsey and, to the extent practicable, to have no adverse effect on the plans and strategies developed for adjacent areas. The Metropolitan Council jurisdiction overlaps the Ramsey DWSMAs as does the jurisdiction of the Lower Rum River Watershed Management Organization. The city of Anoka overlaps a small portion of the East DWSMA. This Plan will be provided to these other governmental units as a resource for future land development planning. Local ordinances and plans

related to land use will be relied upon for the management of the portion of Ramsey's East DWSMA that extends into the city of Anoka. The Wellhead Protection Manager will, to the extent feasible and practicable, communicate the goals and objectives of this Plan to the other local governmental units whose jurisdictions overlap the Ramsey DWSMAs.

The City of Ramsey will continue to rely on Federal, State, County, and local agencies and regulations and programs to handle issues outside of the City's boundaries regarding water conservation, water appropriations, and well drilling. City staff will look to the MDH for continued regulation of the installation of wells and proper sealing and abandonment of old wells. In addition, The City recognizes that the MDNR plays a role in the approval of applications for construction of new high capacity wells as well as administering water appropriations.

The programs identified above have proven to be effective. City staff will cooperate with the identified agencies, to the extent practicable, as issues arise in the future.

4.2.3 Administrative, Technical, and Financial Considerations

The City expects to have adequate resources available over a multi-year period to manage their source water aquifer within their DWSMAs. Funds to support ongoing wellhead and source water protection efforts will come from the City's water utilities budget. Wellhead and source water protection activities will be evaluated periodically per MDH requirements 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. When appropriate and to assist in funding of activities, the City may apply for grants from the MDH Source Water Protection Grant Program to fund implementation of management activities described later in this Plan.

For this WHPP to be effective, the City will need to keep the public aware of the issues affecting the public water supply through public educational programs. Therefore, the wellhead and source water protection actions described later in this Plan will include public education. Routine administrative duties will be directed or performed by the Wellhead Protection Manager. Specific tasks and strategies will be performed by the Wellhead Protection Manager or delegated by the Manager to City staff or outside resources.

If new high capacity wells are installed in or near the DWSMAs in the City's source water aquifer or appropriations are increased for existing wells, it is possible that the changes may affect the size and shape of Ramsey's WHPAs and DWSMAs. The City intends to amend and update its Wellhead Protection Plan, as required by the Wellhead Protection Rules, at least every 10 years or as specified by the MDH.

5.0 Issues, Problems, and Opportunities

In accordance with Minnesota Rules chapter 4720.5230, this section discusses issues, problems, and opportunities related to land use, comments from local units of government and the general public, the data elements and local, state, and federal programs and regulations.

5.1 Land Use Issues, Problems, and Opportunities

5.1.1 Source Water Aquifers

As shown on Figure 1, the aquifer vulnerability classification in the Ramsey DWSMAs is Moderate. Approximately 98% of the area in the Southwest DWSMA has an aquifer vulnerability classification of Moderate. The aquifer vulnerability is classified as Low in 100% of the West, Well 8, and Well 14 DWSMAs. The aquifer vulnerability is classified as moderate in 100% of the Northwest and East DWSMAs.

The City currently has eight water supply wells (Table 1). Seven of the wells (Wells 1, 3, 4, 5, 6, 7, and 8) are primary water supply wells and one (Well 2) is used seasonally during periods of high demand.

The City anticipates the addition of two new wells to the water supply system by 2030. The addition of new high capacity wells within or near the DWSMAs (either municipal wells or private wells) could produce changes in the groundwater flow system (e.g., flow direction or static water level) which could result in changes to the shape and extent of the WHPAs and DWSMAs delineated for this WHPP. The City will work with the Wellhead Protection Consultant and MDH to amend this WHPP as necessary when additional high capacity wells are installed within or near the DWSMAs.

As discussed elsewhere in this Plan amendment, potential sources of contamination that could affect the source water aquifer were identified during the PCSI. These potential contaminant sources include wells, potential Class V well locations, storage tanks, chemical storage locations, spill locations, and brownfield sites classified as potential contaminant source properties (see Appendix C). Table 3 indicates there is one well completed in the source water aquifer within the IWMZ around one of the City's water supply wells. This well is at Ramsey Fire Station No. 2. Since the City maintains control over this well manages it appropriately the risk to the nearby water supply well associated with the fire station well is classified as moderate. No other potential contaminant source entities were identified in the IWMZs during the PCIS work. A small number of the identified potential contaminant source locations fall in the Emergency Response Zones (ERZs) around the municipal wells (Table 3).

The entities in the various potential contaminant source categories are regulated and tracked by State or Federal programs. The lack of City jurisdiction over the potential contaminant source entities poses a potential problem for protection of the source water aquifer. However, the jurisdictional issues also provide the City of Ramsey with an opportunity to develop working relationships with State agencies that regulate and track the potential contaminant source entities. Therefore, the City will work with the appropriate State programs, to the extent practicable, to address the potential contaminant sources within the DWSMAs.

Ramsey is a member of the Anoka County Municipal Wellhead Protection Group (ACMWPG). As such, the City has the opportunity to work with surrounding communities and Anoka County to protect the source water aquifer, when mutually beneficial. Anoka County provides household hazardous waste management services to residents to help prevent residential pollution of source water aquifers.

Ramsey has plans and policies in place for managing growth of the City, the allowable land uses, water supplies, and wells. Policies identified in these plans will help protect the City's source water aquifer.

5.1.2 Groundwater Quality

Ramsey has always placed a high priority on the safety of the municipal water supply system. In order to safeguard the municipal water supply system, Ramsey strictly limits access to their wells and associated infrastructure to Ramsey staff.

Groundwater pumped from the source water aquifers by the Ramsey wells is currently free of pathogens and disease-causing organisms. In addition, no contaminants have been reported in water samples from the Ramsey wells at concentrations that exceed applicable Federal and state health-related standards and the water Ramsey supplies to its customers currently meets or exceeds the water quality requirements of the Federal Safe Drinking Water Act as documented in the City's Annual Drinking Water Quality Reports. The 2018 Drinking Water Report is presented in Appendix D and can also be accessed via the City's website at http://www.ci.ramsey.mn.us/Archive.aspx?AMID=38 along with reports from previous years.

As discussed in Appendix C, potential contaminant sources identified in the Ramsey DWSMAs include wells, potential Class V well locations, storage tanks, chemical storage locations, spill locations, and brownfield sites classified as potential contaminant source properties. Table 3 provides a summary of the numbers of these potential contaminant sources identified in the DWSMAs during development of this Plan amendment. Development of this Plan amendment provides Ramsey with an opportunity to prepare and implement a program to track potential contaminant source locations within the DWSMAs and educate the public regarding source water protection.

5.1.3 DWSMAs

Current land uses in the Ramsey DWSMAs that cover more than one percent of the area in the DWSMAs include Residential of various types, Undeveloped land, Park/Recreational/Preserve, Retail and Other Commercial, Agricultural, Major Highways, and Open Water. As indicated in Table 1, Ramsey Wells 1, 2, 3, 4, 5 and 8 are classified as vulnerable to contamination. The vulnerability to contamination of the portion of the source water aquifers encompassed by the DWSMAs is classified as Moderate. Current and future land uses could potentially affect the management strategies for Ramsey's DWSMAs.

As noted above, the City is a member of the ACMWPG. The ACMWPG is an advisory group that includes Ramsey along with neighboring public water suppliers. The members work together to address and collaborate on common elements of wellhead protection plans.

No other issues, problems, or opportunities, beyond those discussed herein, have been identified regarding land uses in the DWSMAs.

Information gathered for this WHPP amendment provides the City with the basis for tracking potential contaminant sources within the DWSMAs. Thus, the City has an opportunity to catalog and track potential contaminant sources and stay informed of land use changes or potential future threats to the source water aquifers.

The presence of privately owned wells within the DWSMAs provides potential pathways for contaminants to reach the source water aquifer if they are not properly constructed, maintained, or, if unused, properly sealed. Locations of wells identified within the DWSMAs during the PCSI are shown in Appendix C.

5.2 Issues, Problems, and Opportunities Disclosed at Public Meetings and in Written Comments

At the beginning of this wellhead protection planning process, the City of Ramsey sent a notification to surrounding local units of government of its intention to initiate work on an amendment to its wellhead and source water protection plan. After approval by the MDH in January 2019 (MDH, 2019a), Ramsey sent information on the WHPAs, DWSMAs, and aquifer and well vulnerability to the local units of government whose jurisdictions overlay some portion of the Ramsey DWSMAs.

The City held a public information meeting on March 19, 2019 to receive comments from the general public regarding Part 1 of the WHPP amendment. The local units of government whose jurisdictions overlay the DWSMAs were notified of the public information meeting. No comments on the Part 1 Wellhead Protection Plan were received from the local units of government or the general public at the Public Information Meeting.

Commented [JG1]: City reviewers please confirm this is the case. If comments were received a the meeting please provide documentation.

As required by the Wellhead Protection Rules, the City provided local units of government whose jurisdictions overlap the DWSMAs a copy of the draft Part 2 Wellhead Protection Plan amendment. Written comments were received from _____. Copies of the written comments received from the local units of government are presented in Appendix E. ****NOTE TO REVIEWERS: This paragraph will be updated as appropriate at the end of the LGU comment period****

The City held a Public Hearing on the WHPP amendment at the September 24, 2019 Ramsey City Council Meeting. The local units of government whose jurisdictions overlap the DWSMAs were notified of the Public Hearing date, time, and location. No comments on the WHPP amendment were received at the public hearing.****NOTE TO REVIEWERS: This paragraph will be updated if necessary after the public hearing and before the plan is submitted to the MDH for approval****

5.3 Issues, Problems, and Opportunities Related to the Data Elements

Beginning with the delineation of WHPAs and DWSMAs (i.e., Part 1 of the WHPP) and continuing in this document, the required data elements have been addressed. As discussed in Appendix C, available local and regional information was used in compiling and assessing the data elements. Ramsey intends to continue collecting data from the municipal wells as well as other applicable information from public data sources, as it becomes available, during the life of this Plan. At a minimum, this Plan will be

revised/updated in ten years, as required by the Wellhead Protection Rules, or as directed by the MDH. Each time this Plan is revised/updated the most recent and accurate data available will be used.

5.4 Issues, Problems, and Opportunities Related to Local, State, and Federal Programs and Regulations

The State of Minnesota and local units of government currently enforce land use ordinances, zoning laws, sewer ordinances, well permitting regulations, and groundwater appropriation permit regulations. Ramsey will work to promote the use of best management practices, (e.g., via the ACMWPG) for potential contaminant source properties within the DWSMAs. It is anticipated that local issues will be adequately addressed through these existing processes and adoption of best management practices.

6.0 Wellhead Protection Goals

In accordance with Minnesota Rules chapter 4720.5240, this section discusses the goals for present and future water use and land use to provide a framework for WHPP objectives and related actions.

Goals presented in this section were selected based on the information gathered and compiled from the data elements, delineations of the WHPAs and DWSMAs, results of the vulnerability assessments, results of the PCSI, expected future land and water uses, identified issues, problems, and opportunities, and evaluation of this information.

Through the years, the City has met water demands with a sufficient and safe water supply. Ramsey intends to continue providing a safe water supply to its customers into the future by implementing this WHPP. Implementation of this WHPP will help ensure that the City will meet this goal.

As shown in Table 1, Ramsey Wells 1, 2, 3, 4, 5, and 8 are classified as being vulnerable to contamination. The aquifer vulnerability is classified as Moderate throughout both DWSMAs (Figure 1). The goals and objectives of this WHPP will focus on reducing the potential contaminant pathways to the source water aquifer that may be provided by private wells, educating property owners and water supply users, and working with the neighboring jurisdictions, to the extent practicable, to ensure proper management of the portion of the East DWSMA the lies outside the Ramsey city limits.

Ramsey has identified the following goals for implementation of this WHPP:

- The City will work to maintain or improve the current level of water quality so that the municipal water supply will continue to meet or exceed all applicable state and federal water quality standards.
- Work with other cities in the ACMWPG to protect the source water aquifer.
- The City will provide information and promote activities that protect the source water aquifer that provides water to the municipal system. This will include increasing public awareness of the Wellhead and Source Water Protection Program and groundwater-related issues, and management of the identified potential contaminant sources within the DWSMAs.
- The City will continue to collect data to support future wellhead and source water protection efforts.

7.0 Objectives and Plans of Action

In accordance with Minnesota Rules chapter 4720.5250, this section discusses the objectives and plans of action to goals for Ramsey's Wellhead and Source Water Protection Program.

7.1 Establishing Priorities

Within the DWSMAs, the vulnerability to contamination of the source water aquifer from which the City of Ramsey wells draw their water is classified as Moderate. The April 4, 2019 Scoping 2 Decision Notice from the MDH required Ramsey to conduct a PCSI to identify potential contaminant source locations in the DWSMAs. Potential contaminant sources identified in the DWSMAs include:

- Above-ground and underground storage tanks
- Leaking underground storage tank (LUST) sites
- Potential Class V well locations
- Chemical storage locations
- Spills/potential contamination sites
- Wells

The number of each type of potential contaminant source in the DWSMAs is shown in Table 3.

The City of Ramsey has identified the objectives and corresponding actions described in the following sections for accomplishing the wellhead and source water protection goals discussed above in Section 6. These goals for the City of Ramsey's Wellhead and Source Water Protection Program will be achieved through the following existing and planned programs:

- Wells
    - Promoting proper management of existing active wells in the DWSMAs
    - Encouraging the proper sealing of all unused wells within the DWSMAs
    - Identification of new high capacity wells in or near the DWSMAs
- Potential contaminant source properties
    - Notifying owners of potential Class V well properties of requirements related to Class V wells
    - Encouraging proper handling of chemicals/wastes
    - Encouraging proper operation and maintenance of storage tanks
    - Tracking the status of identified brownfields sites in the DWSMAs
    - Updating information on potential contaminant sources in the DWSMAs as new locations are identified. This will include obtaining information on potential contaminant sources in the DWSMAs from the regulating agencies to maintain an up-to-date potential contaminant source database for the DWSMAs and allow timely recognition of potential issues that could affect the Ramsey municipal water supply or DWSMAs.

- Public education
    - Distribution of the Ramsey Annual Water Quality Report for the water supply system,
    - Posting Wellhead Protection Program information on the City of Ramsey website (http://www.ci.ramsey.mn.us/) and provide a link to the ACMWPG's *Know the Flow* website (http://www.knowtheflow.us/) on the City's website,
    - Inclusion of wellhead and source water protection in the City's planning process,
- Continued data collection
    - Recording static and pumping water levels in the Ramsey water supply wells,
    - Monitoring water levels in the City's observation well network,
    - Collection of additional local geologic and hydrogeologic data as it becomes available from public sources or from City-sponsored projects.

7.2 Well Management

The well management objectives outlined in this section consist of promoting the proper sealing of any unused, unmaintained, damaged, or abandoned wells and promoting proper management of active wells within the DWSMAs.

7.2.1 Distribution of Well Operation and Maintenance Information

The MDH has developed a handbook of information on proper well construction, operation, and maintenance titled "Well Owner's Handbook – A Consumer's Guide to Water Wells in Minnesota". This handbook is available on the MDH website. Ramsey will attempt to provide the handbook information to all owners of active wells within the DWSMAs. To accomplish this, a link to the MDH website page where the handbook can be found will be added to the City's website and the City will attempt to notify well owners within the DWSMAs via mail that the information is available through the City's website. Ramsey staff will track the number of well owners to whom they provide information regarding the Well Owner's Handbook.

7.2.1.1 Source of Action

Ramsey staff will obtain the website information for the handbook from the MDH. City staff will then mail the website information to appropriate addresses within the DWSMAs, include a link to the MDH website on the City's website and in the City's *Ramsey Resident* newsletter, and have a copy of the handbook available in a publicly accessible location in the Ramsey City offices.

7.2.1.2 Cooperators

None.

7.2.1.3 Time Frame

Distribution of the information to owners of will be done within one year after approval of this WHPP.

7.2.1.4 Estimated Cost

Approximately $500 - $1,000. Costs will include City staff time, mailer printing and postage costs, and handbook printing costs.

7.2.1.5 Goals Achieved

Through the MDH handbook, well owners will be educated concerning the proper operation and maintenance of wells. Proper operation and maintenance of wells will reduce the potential risk of these wells becoming pathways for contaminants to travel from the ground surface to the source water aquifer.

Success criterion: Notification of well owners in the DWSMAs by mail that information on the proper operation and maintenance of private wells is available through the City's website will be completed within one year of MDH approval of the WHPP and tracking of the number of well owners to whom the notification is sent.

7.2.2 Promote the Proper Sealing of Unused, Unmaintained, Damaged, or Abandoned Wells within the DWSMAs

City staff will promote the proper sealing of unused, privately owned wells within the DWSMAs. As indicated in Table 3, the highest priority will be placed on those wells that are completed in the source water aquifer from which the Ramsey municipal wells pump and areas under current and near term development.

Proper sealing of unused wells can be promoted by periodically mailing a reminder to owners of wells that unused wells should be properly sealed and/or by posting a reminder on the City's website, in the *Ramsey Resident* newsletter, and working with the ACMWPG to post reminders on the *Know the Flow* website. The reminder will include a notification of the low interest loan program available through Anoka County for the sealing of unused wells and a link to the section of the *Know the Flow* website that has information related to sealing of unused wells. Proper sealing of unused wells at properties on which new developments are built or as properties are redeveloped can be promoted as part of the City's development approval process.

7.2.2.1 Source of Action

City staff

7.2.2.2 Cooperators

ACMWPG

7.2.2.3 Time Frame

The first reminders to owners of wells identified as high priority will all occur within two years of approval of this Plan.

7.2.2.4 Estimated Cost

Approximately $1,000-$2,000 for each well sealing reminder mailing event. City staff time and costs for preparing and mailing reminders to well owners and for preparing reminders to be included in the City's newsletter, on the City's website, or on the *Know the Flow* website.

7.2.2.5 Goals Achieved

As this action is implemented, the City's goal of eliminating potential pathways for contaminants to travel from the ground surface to the source water aquifer will be realized.

Success criterion: The first reminder distributed to well owners in the DWSMAs within two years of MDH approval of the WHPP and subsequent reminders distributed every three years thereafter for the life of the Plan and tracking of the number of reminders distributed.

7.2.3 Identify New High-Capacity Wells within or Near the DWSMAs

City staff will request the MDH to notify the City when requests for new high capacity wells within the Ramsey DWSMAs are received. City staff will also contact the MDNR to request that the City receive notification via MPARS when the MDNR receives requests for new high capacity wells or new or changed appropriations within the Ramsey DWSMAs. If necessary, assistance from the Wellhead Protection Consultant will be requested to assess whether the new high capacity wells or new appropriations may result in a change in the DWSMA boundaries.

7.2.3.1 Source of Action

City staff will contact the MDH and MDNR regarding notifications on new high capacity wells and new or changed appropriations in the Ramsey DWSMAs. City staff will also request, as needed, assistance from the Wellhead Protection Consultant and the MDH to evaluate whether proposed pumping (or changes to pumping) will change the boundaries of the DWSMAs delineated for Ramsey's wells.

7.2.3.2 Cooperators

MDH, MDNR, and, possibly, the Wellhead Protection Consultant

7.2.3.3 Time Frame

Request to the MDH and MDNR to set up notifications will be made within two years of Plan approval; evaluation of potential changes to the DWSMA boundaries as needed.

7.2.3.4 Estimated Cost

Approximately $3,000-$10,000 for each event of identifying new wells or changes to existing appropriations permits and evaluating how the changes may affect the DWSMA boundaries. City staff time and, potentially, Wellhead Protection Consultant time.

7.2.3.5 Goals Achieved

As this action is implemented, the City's WHPA/DWSMA delineations will remain current. New well owners will also be identified and educational materials identified/developed as part of other well management strategies can be provided to these new well owners.

Success criterion: Bi-annual determination of whether there are new high capacity wells in or near the DWSMAs and if there have been any major changes in permitted appropriations for existing high capacity wells in or near the DWSMAs.

7.3 Potential Contaminant Source Properties

The management objectives outlined in this section consist of providing information to owners of potential Class V well properties, promoting proper operation of storage tanks, maintaining an up-to-date database of storage tank properties in the DWSMAs, promoting proper handling of chemicals and wastes, reduction of waste streams at potential contaminant source properties within the DWSMAs, and maintaining the Inner Wellhead Management Zone (IWMZ) around each well so that potential contaminants are prevented from entering the IWMZs.

7.3.1 Notification of Owners of Potential Class V Well Properties

During the PCSI, seven separate property parcels where Class V wells may be or may have been located were identified within the West DWSMA. The City will provide a fact sheet on Class V wells and reporting requirements to owners of properties with active businesses where Class V wells may be or may have been located. The fact sheet will describe what a Class V well is and the impacts such wells can have on groundwater quality.

7.3.1.1 Source of Action

City staff, perhaps with the assistance of the MDH, U.S. EPA, and/or Wellhead Protection Consultant, will obtain or prepare a packet that includes information on what constitutes a Class V well and what federal requirements are associated with Class V wells. City staff will mail the information packet to targeted property owners in the West DWSMA.

7.3.1.2 Cooperators

Potentially staff MDH, U.S. EPA, and the Wellhead Protection Consultant

7.3.1.3 Time Frame

Distribution of the information on Class V wells will occur within two years of approval of this Plan.

7.3.1.4 Estimated Cost

Approximately $1,000 to $2,000. Estimated costs include City staff time, printing and postage costs and, potentially, Wellhead Protection Consultant costs.

7.3.1.5 Goals Achieved

Property owners will have information to determine if they own a Class V well and, if so, become aware of their responsibilities related to Class V wells. Compliance with the applicable regulations regarding Class V wells by the property owners will reduce the potential for groundwater contamination and impact to the source water aquifer.

Success criterion: Distribution of information according to the schedule outlined in section 7.3.1.3 and tracking of the number of information packets distributed.

7.3.2 Information for Registered Storage Tank Owners

The City, possibly with the assistance of the Wellhead Protection Consultant, will prepare and send a letter to owners of properties within the DWSMAs that have active registered storage tanks. The letter will not be sent to owners of properties for which available information indicates that the storage tanks have been removed. This letter will direct recipients to MPCA publications and guidance on proper operation and maintenance of storage tanks and include information on the City's Wellhead and Source Water Protection Program (the Program). Information in the letter will also be posted on the City's website. A copy of the letter will be available in a publically accessible location in City Hall.

7.3.2.1 Source of Action

City staff, possibly with the assistance of the Wellhead Protection Consultant, will prepare the letter to owners of targeted storage tank properties. City staff will also post information contained in the letter to the City's website.

7.3.2.2 Cooperators

Wellhead Protection Consultant, if needed

7.3.2.3 Time Frame

The letter will be sent to owners of properties in the DWSMAs where active tanks are located within two years of approval of this Plan. In addition, letters will be sent to property owners as new storage tanks are identified in the DWSMAs. A reminder letter will be sent to all targeted storage tank property owners in year seven of Plan implementation.

7.3.2.4 Estimated Cost

Approximately $1,200-$2,000. Estimated costs include City staff time, letter production and postage costs, and Wellhead Protection Consultant costs (as necessary).

7.3.2.5 Goals Achieved

Targeted property owners will be educated concerning the Wellhead and Source Water Protection program, on where to find information on proper operation and maintenance of storage tanks, and the requirements necessary to maintain a safe and secure system. Property owners will be encouraged to use best management practices regarding their storage tanks, and report any releases of contaminants to the City in addition to any other actions required by applicable regulations. Planned distribution of this letter

provides the City the opportunity to heighten the awareness of wellhead and source water protection with these property owners.

Success criterion: Distribution of the letter to owners of active storage tanks completed according to the schedule outlined in section 7.3.2.3 and tracking of the number of letters distributed.

7.3.3 Tracking of Registered Storage Tanks

In year five of Plan implementation, the City will request from the MPCA, or direct the Wellhead Protection Consultant to request on behalf of the City, information on the status of registered storage tanks in the Ramsey DWSMAs. This information will allow the City to update the PCSI database and maintain current information regarding these potential contaminant sources in the DWSMAs. It is anticipated that this activity would also identify any new registered storage tanks in the DWSMAs. If necessary, the PCSI database will be updated to accurately reflect the number and status of registered storage tanks in the DWSMAs after the information is obtained from the MPCA.

7.3.3.1 Source of Action

City staff, or the Wellhead Protection Consultant on behalf of the City, will contact MPCA staff to obtain the information on the status of registered storage tanks.

7.3.3.2 Cooperators

MPCA and, possibly the Wellhead Protection Consultant.

7.3.3.3 Time Frame

Information will be requested from the MPCA in year five after approval of this Plan.

7.3.3.4 Estimated Cost

Approximately $1,000 - $2,000 for the review of new storage tank information and, if necessary, update of the PCSI database. Estimated costs include City staff time and Wellhead Protection Consultant time (as necessary). Costs may vary depending upon the number of new registered storage tank locations that must be added to the PCSI database.

7.3.3.5 Goals Achieved

By tracking the status of registered storage tanks within the DWSMAs, the City will remain aware of the current status of these potential contaminant sources. This will allow the City to identify potential impacts to the municipal water supply and give the City time to determine the best response to any potential impacts before the municipal water supply is compromised.

Success criterion: Submittal of request to the MPCA for information regarding the status of registered storage tanks in the DWSMAs per the schedule in section 7.3.3.3 and completion of any updates to the PCSI database necessitated by the new information.

7.3.4 Information for Chemical Storage Properties

Through direct mail contact, the City will encourage the owners of the potential contaminant source properties associated with chemical storage within the West DWSMA to participate in self-audits of their chemical storage and waste generation and handling. The direct mail contact from the City will also encourage these businesses to request a site visit from the Minnesota Technical Assistance Program (MnTAP). MnTAP helps Minnesota businesses implement industry-tailored solutions that maximize resource efficiency, prevent pollution, and reduce costs to improve public health and the environment.

MnTAP helps Minnesota businesses protect the environment and stay competitive by providing practical alternatives to prevent pollution of land, air, and water. By reducing waste and increasing efficiency, businesses can save on disposal and raw material costs, decrease the regulatory compliance burden, and make working conditions healthier and safer for their employees.

7.3.4.1 Source of Action

City staff, perhaps with the assistance of the Wellhead Protection Consultant, will prepare and distribute the direct mail notice.

7.3.4.2 Cooperators

Wellhead Protection Consultant, potentially

7.3.4.3 Time Frame

Distribution of the direct mail notice will occur within two years of approval of this Plan. In year six of Plan implementation the direct mail notice will be sent to owners of any newly identified properties within the DWSMAs that are associated with chemical storage.

7.3.4.4 Estimated Cost

Costs for the preparation of the direct mail notice will include City staff time, printing, postage costs, and, potentially, Wellhead Protection Consultant costs and are estimated to be $800 to $1,800.

7.3.4.5 Goals Achieved

Business owners will become aware of issues related to their chemical storage and handling and learn of available assistance for identifying ways to minimize and properly dispose their waste.

Success criterion: Contact of property owners according to the schedule outlined in section 7.3.4.3.

7.3.5 Sites Where Contaminant Releases May Have Occurred

During the PCSI, locations of sites where contaminants may potentially be present were identified in the DWSMAs. All the sites are classified as brownfields sites by the MPCA. In year five of this Plan, City staff will request from the MPCA updates on the status of these properties, including information on any groundwater contamination associated with these sites. Information on any new brownfields sites in the DWSMAs will also be requested. Updated information received will be reviewed to determine if any additional actions related to protection of the City's water supply are warranted. The PCSI database will be

updated as warranted. If necessary, the City will request assistance from the Wellhead Protection Consultant.

7.3.5.1 Source of Action

City staff

7.3.5.2 Cooperators

MPCA and, potentially, the Wellhead Protection Consultant

7.3.5.3 Time Frame

The request for updated data will be made in year five after approval of this Plan. If warranted, the PCSI database update would be completed following review of the updated data.

7.3.5.4 Estimated Cost

Approximately $500 to $1,500 for each data update. Estimated costs include City staff time and, if needed, Wellhead Protection Consultant costs.

7.3.5.5 Goals Achieved

The City will maintain current information on the status of the brownfields sites and any groundwater contamination associated with these sites.

Success criterion: Data update requests according to the schedule outlined in section 7.3.5.3.

7.3.6 Inner Wellhead Management Zone Management

The Inner Wellhead Management Zone (IWMZ) is defined in the Minnesota Rules as that area within a 200-foot radius of a public water supply well. The City will monitor setbacks in the IWMZs, possibly with the assistance of the MDH, to ensure that the IWMZ around each Ramsey municipal well remains free of potential contaminant sources. City staff will document each IWMZ inspection and any actions taken to remove potential contaminant sources from an IWMZ.

7.3.6.1 Source of Action

City staff

7.3.6.2 Cooperators

MDH

7.3.6.3 Time Frame

The monitoring of setbacks within the IWMZs will be every two years after approval of this Plan.

7.3.6.4 Estimated Cost

Costs for monitoring the IWMZ setbacks are estimated to be $1,500 for each evaluation of the IWMZs and include City staff time.

7.3.6.5 Goals Achieved

By monitoring the IWMZ setbacks, Ramsey will be able to keep the IWMZ around each well free of potential contaminant sources and ensure that any new regulated activities will meet required setbacks.

Success criterion: Completion of IWMZ potential contaminant source inventories per the schedule in section 7.3.6.3 and keeping the IWMZs free of potential contaminant sources.

7.4 Transportation Corridors and Emergency Response

U.S. Highway 10 and County Roads 56, 83, and 116 cross the West DWSMA. State Highway 47 and County Road 116 cross the East DWSMA. The BNSF Railroad tracks cross the southern portion of the W est DWSMA. Contaminant spills in these major transportation corridors could, if not cleaned up in a timely matter, have the potential to adversely impact the City's water supply. Therefore, the Wellhead Protection Manager will establish communication and create awareness among Ramsey city staff about transportation corridor issues that may affect the public water supply and the procedures in place to address spills and prevent released contaminants from entering the municipal water supply. The Wellhead Protection Manager will work with the City's Emergency Manager to ensure that emergency procedures that will protect the municipal water supply are part of the City's emergency response program.

The Wellhead Protection Manager will also provide copies of the WHPP to the MPCA and BNSF Railroad.

7.4.1 Source of Action

City staff

7.4.2 Cooperators

None

7.4.3 Time Frame

The Wellhead Protection Manager will meet with the Emergency Manager within two years of approval of this Plan. Transmittal of the WHPP to the MPCA and BNSF Railroad will occur within one year after approval of this plan.

7.4.4 Estimated Cost

Costs for this action will include City staff time and production costs for WHPP copies. Estimated cost is $2,000 to $2,500.

7.4.5 Goals Achieved

The City's emergency responders will work with and assist County and State first responders in the handling of spills in transportation corridors to ensure, to the extent possible, released contaminants are prevented from entering the environment and, potentially, impacting the municipal water supply.

The MPCA and BNSF Railroad will be educated regarding the boundaries of the Ramsey DWSMAs and the management actions that are planned.

Success criterion: Emergency responder and BNSF Railroad awareness of the City's DWSMAs.

7.5 General Public Education

Public education concerning the DWSMAs associated with the City's municipal wells will include: inclusion of Wellhead and Source Water Protection Program information in the City's *Ramsey Resident* newsletter, distribution of the Ramsey Annual Water Quality Report (aka, Consumer Confidence Report) to residents of Ramsey, providing information on the City of Ramsey website (http://www.ci.ramsey.mn.us/) and the *Know the Flow* website (http://www.knowtheflow.us/), and inclusion of wellhead and source water protection into the City's planning process. The *Know the Flow* website is a cooperative water resources management website established by the ACMWPG.

7.5.1 Wellhead Protection Information

The City will develop information regarding the Wellhead and Source Water Protection Program for inclusion in the City's *Ramsey Resident* newsletter. The newsletter is available to all City residents.

7.5.1.1 Source of Action

City staff will prepare information on wellhead protection for the City's newsletter one to two times per year. If necessary, the Wellhead Protection Consultant will be contacted for assistance in preparing this information for the newsletter. The newsletter is distributed to Ramsey residents and businesses six times per year and is available on the City's website.

7.5.1.2 Cooperators

City staff and, if necessary, the Wellhead Protection Consultant

7.5.1.3 Time Frame

One to two times per year beginning in year two after approval of this WHPP

7.5.1.4 Estimated Cost

Approximately $500 - $2,500 each time information is prepared for the newsletter. Costs will include City staff time for preparing the information, and costs for Wellhead Protection Consultant assistance (as needed).

7.5.1.5 Goals Achieved

The information in the newsletter will be intended to educate owners of properties within the DWSMAs, and the general public, about the City's Wellhead and Source Water Protection Program, groundwater protection principles, and steps that everyone can take to protect the City's municipal water supply.

Success criterion: At least annual distribution of information related to groundwater and wellhead protection via the City's newsletter per section 7.5.1.3.

7.5.2 Drinking Water Quality Report

The City will continue to annually prepare and distribute the Annual Water Quality Report (aka, Consumer Confidence Report) to Ramsey residents. The report provides residents with information regarding the City's municipal water supply and its water quality.

7.5.2.1 Source of Action

City staff

7.5.2.2 Cooperators

None

7.5.2.3 Time Frame

Annually as required by Federal regulations

7.5.2.4 Estimated Cost

Costs include City staff time for preparation of the report and posting it on the City's website. Estimated annual cost for preparation of the report is $1,000 to $1,500.

7.5.2.5 Goals Achieved

The residents of Ramsey will become more aware of the Federal water quality requirements for public water supplies. Residents will also become more aware of the overall water quality of Ramsey's municipal water supply.

Success criterion: Annual publication/distribution of the Annual Water Quality Report.

7.5.3 City of Ramsey and *Know the Flow* Websites

The City will post information on the Wellhead and Source Water Protection Program on the City's website (http://www.ci.ramsey.mn.us/) and on the *Know the Flow* website (http://www.knowtheflow.us/). If necessary, the Wellhead Protection Consultant will be asked to assist with the preparation of information to be posted on the websites.

7.5.3.1 Source of Action

City staff

7.5.3.2 Cooperators

City staff, ACMWPG, and Wellhead Protection Consultant (as needed)

7.5.3.3 Time Frame

To begin in year two after approval of this WHPP. Information on the websites will be updated periodically thereafter.

7.5.3.4 Estimated Cost

Approximately $500-$2,500. City staff time and, potentially, Wellhead Protection Consultant costs.

7.5.3.5 Goals Achieved

The residents of Ramsey will become more aware of wellhead and source water protection issues and the actions Ramsey is taking to protect the municipal water supply. Education of the residents should lead to a better awareness of pollution prevention among the City's population.

Success criterion: Posting of Wellhead and Source Water Protection Program information on the City and *Know the Flow* websites according to the schedule identified in section 7.5.3.3.

7.6 Inclusion of Wellhead and Source Water Protection in the Planning Process within the DWSMAs

Copies of this WHPP amendment will be supplied to the City's Planning and Development Department so that they are aware of the Wellhead Protection Program. The Wellhead Protection Manager will work with the Planning and Economic Development Departments to determine the best way to ensure that the City's planning and development process is consistent with the goals and objectives of this WHPP. Options that may be discussed could include developing checklists related to wellhead protection for use in the planning review process, development of guidelines (based on MDH guidance) regarding when to allow storm water control facilities in the DWSMAs, adjustments to zoning, amendments to the City Code, communication with other members of the ACMWPG regarding their efforts in this area, and available resources from Metropolitan Council.

7.6.1 Source of Action

City staff

7.6.2 Cooperators

ACMWPG, Metropolitan Council

7.6.3 Time Frame

The Wellhead Protection Manager and those responsible for City planning and economic development will determine, within two years of approval of this WHPP, how best to incorporate wellhead and source water protection into the City's development, zoning, and planning processes.

7.6.4 Estimated Cost

Approximately $3,000-$5,000. Costs to complete this task will include staff time to develop a process for including wellhead protection in the planning process and to review proposals that could affect the municipal wells and associated DWSMAs.

Success criterion: Implementation of a method for incorporating wellhead and source water protection into the City's development, zoning, and planning processes.

7.6.5 Goals Achieved

Wellhead and source water protection will be incorporated into future planning efforts. Potential pollution risks to the source water aquifers will be reduced.

7.7 Data Collection

Ramsey will continue to collect and maintain local geologic and hydrogeologic data as it becomes available in order to improve and augment current information and to provide additional data for future revisions of this WHPP. The City will also continue to collect information on potential contaminant sources within the DWSMAs.

7.7.1 Monitoring Water Levels in Municipal Water Supply Wells and City Observation Wells

The City will continue to routinely measure the static and pumping water levels in the municipal water supply wells and the City's observation wells. These water levels will be measured per the methods and schedules identified in the City's draft Water Supply Plan (Ramsey, 2018a).

7.7.1.1 Source of Action

City staff

7.7.1.2 Cooperators

None.

7.7.1.3 Time Frame

Ongoing

7.7.1.4 Estimated Cost

Approximately $2,000-$4,000 annually

7.7.1.5 Goals Achieved

Routine collection of groundwater levels in the municipal wells and City observation wells will provide data for the evaluation of groundwater elevation trends over time.

Success criterion: Compilation of a long term groundwater elevation dataset that can be used to evaluate groundwater elevation trends in the source water aquifer.

7.7.2 Other Geologic and Hydrogeologic Data Collection

The City will attempt to collect local geologic and hydrogeologic data for the Ramsey area as it becomes available from other public sources or through City-sponsored projects. The City will also support, whenever possible, future data collection efforts by other governmental entities (e.g., MGS, MDH, MDA, MDNR, MPCA, Lower Rum River Watershed Management Organization, and Anoka County).

7.7.2.1 Source of Action

City staff

7.7.2.2 Cooperators

State and Anoka County agencies conducting geologic and hydrogeologic studies, well drilling companies, Wellhead Protection Consultant, and others.

7.7.2.3 Time Frame

Ongoing beginning with approval of this WHPP.

7.7.2.4 Estimated Cost

Approximately $1,000 to $1,500 for compiling data from other public sources.

7.7.2.5 Goals Achieved

More accurate hydrogeologic data will be available for use in siting future wells and for future revisions of the delineated WHPAs and the DWSMAs for existing and proposed municipal wells. Updated and more accurate vulnerability assessments may be possible as a result of new information.

Success criterion: Compilation of a geologic/hydrogeologic dataset that can be used in the future.

7.7.3 Updating of the Groundwater Model Used in the WHPA Delineations

Any new local geologic and hydrogeologic data for the Ramsey area will be periodically reviewed to determine if the groundwater model used in the WHPA delineations will need to be updated. In addition, pumping from high capacity wells often changes over time. Changes in pumping from high capacity wells in or near the Ramsey DWSMAs could affect the DWSMA boundaries. Therefore, the City will work with the Wellhead Protection Consultant to review available information and determine if the groundwater flow model should be updated so that future WHPA/DWSMA delineations will be consistent with available information.

7.7.3.1 Source of Action

City staff

7.7.3.2 Cooperators

Wellhead Protection Consultant

7.7.3.3 Time Frame

Five to seven years after approval of this Plan

7.7.3.4 Estimated Cost

Approximately $1,000 to $5,000 depending upon the magnitude of the revisions needed to make the groundwater flow model consistent with the most current available information.

7.7.3.5 Goals Achieved

The groundwater flow model used in the WHPA delineations will be consistent with available information. Since the groundwater flow model used to delineate the WHPAs will be consistent with current information updating of the WHPAs in the future can be done more efficiently.

Success criterion: An updated groundwater flow model that can be used for future updates to Part 1 of the City's WHPP.

7.7.4 Potential Contaminant Source Database

The City will periodically update the information on potential contaminant sources within the DWSMAs collected during the development of this WHPP, with the assistance of the Wellhead Protection consultant, if needed. The City will add information to the potential contaminant source database as additional potential contaminant source sites are identified or as sites are closed through working with the MPCA, the MDH, the MDNR, the U.S. EPA, and Anoka County. New information for the PCSI database will be obtained by contacting appropriate MPCA, MDH, MDNR, U.S. EPA, and County programs between years four and six of Plan implementation.

7.7.4.1 Source of Action

City staff.

7.7.4.2 Cooperators

MPCA, MDH, MDNR, U.S. EPA, Anoka County staff, and the Wellhead Protection Consultant, if needed.

7.7.4.3 Time Frame

Between years four and six after approval of this Plan.

7.7.4.4 Estimated Cost

Approximately $500-$2,500 that includes City staff time and, if needed, Wellhead Protection Consultant costs. Actual costs will depend upon the amount of new potential contaminant source location information that must be added to the potential contaminant source database (including location verification) and in any year could be higher than the estimated range shown.

7.7.4.5 Goals Achieved

This database will be a useful tool to track, catalog, and document the status of potential contaminant sources within the DWSMAs.

Success criterion: Maintaining an up to date potential contaminant source database.

7.7.5 Potential Contaminant Source Verification

Potential contaminant sources were identified within the DWSMAs during the PCSI. As part of the development of this WHPP, all locations of identified potential contaminant sources were verified by the Wellhead Protection Consultant to the extent possible based on the available data. Any new potential

contaminant source locations identified during the implementation of this WHPP will be verified by the City with the assistance of the Wellhead Protection Consultant, if needed.

7.7.5.1 Source of Action

City staff.

7.7.5.2 Cooperators

City staff and the Wellhead Protection Consultant, if needed.

7.7.5.3 Time Frame

When new potential contaminant sources in the DWSMA are identified.

7.7.5.4 Estimated Cost

Approximately $500-$3,000. City staff time and Wellhead Protection Consultant costs, if needed. Actual costs will depend upon the number of new potential contaminant source locations that must be verified and in any update could be higher than the estimated range shown.

7.7.5.5 Goals Achieved

Verification of newly identified potential contaminant source locations within the DWSMAs will allow the City to remain in compliance with the requirements of the State of Minnesota's Wellhead and Source Water Protection Program. Verification of the newly identified locations will also ensure that the City uses the most accurate data on type and location of potential contaminant sources as implementation of this WHPP proceeds.

Success criterion: All potential contaminant source locations in the database are verified to the extent possible.

7.7.6 Tritium and Indicator Parameter Sampling

In the April 4, 2019 Scoping Decision Notice (MDH, 2019b), the MDH recommended that the City should sampling Wells 1, 3, 4, 6, and 7 for tritium and the indicator parameters ammonia, bromide, chloride, nitrate and nitrite, and sulfate. Tritium (^{3}H), a radioactive isotope of hydrogen, whose atmospheric concentrations rose in the 1950s and early 1960s due to atmospheric hydrogen bomb testing. It has been used extensively to date groundwater. Tritium activities peaked during atmospheric hydrogen bomb testing of the 1950s and 1960s, and values of ^{3}H in precipitation reached a maximum of approximately 10,000 TU (tritium units) in 1963 (Mazor, 2004). Natural production of ^{3}H in the upper atmosphere introduces approximately 5 TU to precipitation each year (Mazor, 2004). The presence of tritium at concentrations above 1 tritium unit in a groundwater sample indicates the presence of a significant fraction of post-1954 (i.e., recently infiltrated) water in the sample. The indicator parameters provide additional information on the rate at which an aquifer recharges and can also provide evidence of impacts to groundwater by human activities.

Sampling of City wells for tritium and the indicator parameters at regular intervals will allow for tracking of concentrations over time. If concentrations of these monitoring parameters in a groundwater sample from a well are significantly higher than the concentrations in a previous sample from the same well it could be an indication that there is a pathway such as a leak in the well casing or an unused, unsealed well in the vicinity that allows water to move from the surface to the source water aquifer faster than before the pathway became available. The City will work with the MDH to sample Wells 1, 3, 4, 6, and 7 in year five after approval of this WHPP. Thereafter, the City will work with the MDH to sample the municipal wells for these parameters at least every 10 years. The City recognizes that, contingent on funding, the MDH will provide sample bottles and cover analytical costs but City staff may be required to perform the sample collection and ship samples to the MDH.

7.7.6.1 Source of Action

City staff

7.7.6.2 Cooperators

MDH

7.7.6.3 Time Frame

In year five after approval of this WHPP and then at least every 10 years thereafter.

7.7.6.4 Estimated Cost

At the time this plan was prepared, cities were not charged by the MDH for tritium and indicator parameter sampling and analysis.

7.7.6.5 Goals Achieved

Obtaining data to evaluate if pathways that allow for relatively rapid movement of water from the surface to the source water aquifers are present.

Success criterion: Collection of groundwater samples from the selected City wells and analysis of these samples for tritium and the indicator parameters on the schedule outlined in section 7.7.6.3.

7.7.7 Evaluation of Well 1 Casing

In the Part 1 WHPP amendment (MDH, 2018) it was noted that the tritium concentration in a groundwater sample collected from Well 1 in 2017 was higher than the tritium concentration in a sample collected from the well in 2006. The rise in tritium concentration could be an indication of a leak in the well casing. Therefore, the City will hire a well contractor to evaluate the condition of the casing during the next scheduled maintenance of the well.

7.7.7.1 Source of Action

City staff

7.7.7.2 Cooperators

Well contractor

7.7.7.3 Time Frame

Next scheduled maintenance of Well 1

7.7.7.4 Estimated Cost

Approximately $10,000 to $15,000. The actual cost will depend on the level of effort required to determine if the casing is compromised.

7.7.7.5 Goals Achieved

Determining if the Well 1 casing is compromised and providing a pathway that allows for relatively rapid movement of water from the surface to the source water aquifers.

Success criterion: Evaluation of the Well 6 casing on the schedule outlined in section 7.7.7.3.

Commented [JG2]: NOTE TO CITY REVIEWERS: In the Part 1 WHPP amendment the MDH noted that the tritium concentration in samples from Well 1 rose from 1.6 in 2006 to 2.4 in 2017. Increasing tritium concentration (assuming there were no problems with the analyses) could indicate the casing is compromised. If maintenance has not been done on Well 1 (including a video inspection of the casing) hasn't been done since the 2017 tritium sampling I would recommend this be done. Including this management action would allow you to apply for a Source Water Implementation Grant from MDH to help pay for the Well maintenance. If this work has been done since 2017 and no holes were found in the casing then I would recommend not including this management action.

8.0 Evaluation Program

Per Minnesota Rule 4720.5270, the progress in implementing a WHPP must be evaluated routinely to determine the effectiveness of the WHPP in terms of accomplishment of goals. Monitoring and evaluation measures to ensure effectiveness of the management strategies are detailed below.

Evaluation activities discussed in this WHPP amendment include the following:

- Track the implementation of the objectives, activities, and tasks discussed above in Section 7.0.
- Determine the effectiveness of specific management strategies for the protection of the Ramsey municipal water supply.
- Identify possible changes to the management strategies to improve overall effectiveness.
- Determine the adequacy of financial resources and staff availability to perform and implement the management strategies planned each year.
- Update the WHPP if new wells are added to the municipal water supply system.

The City of Ramsey will continue to cooperate with the MDH in the monitoring of the City's municipal water supply to determine if the management strategies presented in this WHPP are having a positive effect on water quality and to identify any water quality problems that may arise and need to be addressed.

The Ramsey Wellhead Protection Manager will strive to provide a report to the City Council every two years that summarizes the progress in implementing the management strategies and objectives in this WHPP. The report will be completed using the MDH Wellhead Protection Program Evaluation form (Appendix F). The City will retain a copy of the report in its Wellhead Protection file and send a copy of the report to the MDH Source Water Protection Unit in St. Paul. The intent of the biannual reports is to compile a comprehensive review of the implementation of the source water management strategies for use when the City updates or revises this WHPP. As specified by the Wellhead Protection Rules, this WHPP will be updated a minimum of every 10 years, or more often as required due to changes to the municipal water supply system.

9.0 Alternative Water Supply Contingency Strategy

The purpose of a contingency plan is to establish, provide, and keep updated certain emergency response 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.

In 2008 the MDNR approved the City's Water Supply Plan that includes a water supply contingency strategy that would be implemented in the event of a water emergency. The City adopted the Water Supply Plan on April 1, 2009. Copies of the MDNR approval letter for the 2009 Water Supply Plan and the completed Certificate of Adoption for the Water Supply Plan that the City filed with the MDNR are presented in Appendix G.

The City had submitted a new Water Supply Plan (Ramsey, 2018) to the MDNR that addresses water emergencies and water conservation in December 2018. Once the new Water Supply Plan is approved by the MDNR and adopted by the City it will replace the plan that was adopted by the City in 2009 referenced above in this section. Since it has been more than 10 years since the City's adoption of the Water Supply Plan and it is not known when the MDNR will complete its review of the City's new Water Supply Plan, the Emergency Preparedness Procedures and Emergency Telephone List sections of the new Water Supply Plan are included in Appendix G and will be followed in until approval/adoption of the new Water Supply Plan. The City will provide documentation of MDNR approval and City adoption of the new Water Supply Plan to the MDH when available.

10.0 References

Bolton & Menk (2017). Comprehensive Water System Study Update – In Coordination with 2040 Comprehensive Plan Update, prepared for City of Ramsey, September 2017.

City of Ramsey (Ramsey), 2018a. Draft City of Ramsey Local Water Supply Plan – Third Generation for 2018-2028, draft submitted to MDNR November 29, 2018.

City of Ramsey (Ramsey), 2018b. Draft Surface Water Management Plan, project 14-31, revised August 23, 2018.

Mazor, E. 2004. Chemical and Isotopic Groundwater Hydrology, 3rd ed., New York: Marcel Dekker Inc.

Metropolitan Council, 2015. 2015 System Statement – City of Ramsey, System Statement issue date September 17, 2015.

Minnesota Department of Health (MDH), 2018. Amendment to the Wellhead Protection Plan – Part 1: Delineation of the Wellhead Protection Area (WHPA), Drinking Water Supply Management Area (DWSMA) and Assessments of Well and DWSMA Vulnerability, prepared for the City of Ramsey, February 2018.

Minnesota Department of Health (MDH), 2017. Scoping Decision Notice No. 1 for the City of Ramsey, PWSID 1020035, for Amending the Wellhead Protection Plan, Letter from Amal Djerrari of the MDH to Bruce Westby of the City of Ramsey, May 10, 2017.

Minnesota Department of Health (MDH), 2019a. Letter from Amal M. Djerrari of the MDH to Bruce Westby of the City of Ramsey approving the Part 1 Wellhead Protection Plan Amendment, dated January 29, 2019.

Minnesota Department of Health (MDH), 2019b. Scoping 2 Decision Notice and Meeting Summary – City of Ramsey – PWSID 1020035, Letter from John Freitag of the MDH to Bruce Westby of the City of Ramsey, April 4, 2019.

Tables

Table 1

Municipal Well Construction Summary
City of Ramsey WHPP Amendment

Local Well ID	Unique Number	Use/ Status[1]	Casing Diameter (in.)	Casing Depth (ft.)	Well Depth (ft.)	Year Constructed	Aquifer	Well Vulnerability
1	161441	P	14	243	323	1984	CTCW	Vulnerable
2	416183	S	14	240	320	1987	CTCG	Vulnerable
3	580303	P	30 x 24	222	345	1997	CTCW	Vulnerable
4	580313	P	30 x 24	191	321	1998	CTCW	Vulnerable
5	593672	P	30 x 24	215	316	2000	CTCW	Vulnerable
6	706840	P	30 x 24	282	390	2005	CTCW	Not Vulnerable
7	743832	P	30 x 24	216	332	2007	CTCW	Not Vulnerable
8	743833	P	30 x 24	245	354	2007	CTCW	Vulnerable

[1] P = Primary
S = Seasonal

Aquifer Codes:
CTCG = Tunnel City Group
CTCW = Tunnel City Group-Wonewoc Sandstone

Table 2

Annual Volume of Water Pumped
City of Ramsey WHPP Amendment

		Total Annual Withdrawal (gal/yr)				
Unique Number	**Well Name**	**2011**	**2012**	**2013**	**2014**	**2015**
161441	1	134,541,000	100,231,000	76,124,000	104,230,000	129,575,000
416183	2	116,,000	5,462,000	65,,000	45,,000	31,,000
580303	3	140,514,000	164,864,000	40,799,000	30,863,000	127,767,000
580313	4	58,523,000	62,362,000	123,903,000	194,032,000	118,314,000
593672	5	30,297,000	59,230,000	47,320,000	58,707,000	76,277,000
706840	6	120,120,000	138,082,000	106,876,000	119,842,000	122,664,000
743832	7	88,424,000	60,305,000	118,526,000	95,657,000	11,063,000
743833	8	117,421,000	29,151,000	74,060,000	57,914,000	14,744,000
	Totals	689,840,000	619,687,000	587,608,000	661,245,000	600,404,000

Source: City water use records, MPARS

Table 3

Summary of Potential Sources of Contaminants and Assigned Management Priority
City of Ramsey WHPP Amendment

Potential Contaminant Source Category	Total Number in DWSMA[1]	Number Within IWMZ and Priority Assigned	Number Within ERZ and Priority Assigned	Number Within Remainder of the DWSMAs and Priority Assigned
Chemical Storage Sites: Non-Agricultural	2	MVZ - 0	MVZ - 0	MVZ - 2 (Low)
Class V Well Locations (CVMVW)	7	MVZ - 0	MVZ - 0	MVZ - 7 (Low)
Potential Contaminant Source Locations (Brownfield Sites)	6	MVZ - 0	MVZ - 0	MVZ - 6 (Low)
Spill Locations	9	MVZ - 0	MVZ - 0	MVZ - 9 (Low)
Leaking Tank Sites				
Closed	9	MVZ - 0	MVZ - 1 (Low)	MVZ - 8 (Low)
Registered Storage Tank Sites				
Status = Active	5	MVZ - 0	MVZ - 0	MVZ - 5 (Mod.)
Status = Inactive, Closed, Removed or Unknown	8	MVZ - 0	MVZ - 1 (Mod.)	MVZ - 7 (Low)
Wells (status = Active, Inactive, or Unknown)				
Completed in a source water aquifer	123[4]	MVZ - 1 (Mod.[2])	MVZ - 0	MVZ - 136 (High)
Not completed in or penetrating source water aquifer	93	MVZ - 0	MVZ - 0	MVZ - 79 (Mod.)

MVZ Moderate aquifer vulnerability zone
ERZ Emergency Response Zone: defined as portion of the WHPA within the 1-year groundwater time of travel area.
IWMZ Inner Wellhead Management Zone: defined in MR4720.5100 subpart 19 as the area within 200 feet of a public water supply well.
[1] Total number of each potential contaminant source type identified during the PCSI.
[2] Site is under City control so priority is set as moderate.
[3] Total number of wells does not include the eight Ramsey municipal water supply wells.
[4] For the purposes of this plan, wells for which the aquifer could not be determined were assumed to be completed in the source water aquifer.

Table 4

High Capacity Wells Within One Mile of the DWSMAs
City of Ramsey

Map ID[1]	Unique ID	Status	Permittee	Use	Aquifer
183	773399	Active	Ramsey, City of	Landscaping/Athletic Field Irrigation	CTCG
122215	122215	Active	Marshall Concrete Products	Non-metallic Processing (rubber, plastic, glass, concrete)	CTCG
201178	201178	Active	City of Anoka	Municipal/Public Water Supply	CEMS
201182	201182	Active	City of Anoka	Municipal/Public Water Supply	CMTS
209269	209269	Active	City of Anoka	Golf Course Irrigation	QWTA
224625	224625	Active	City of Anoka	Municipal/Public Water Supply	CWMS
417499	417499	Active	Kurak, Thomas	Once-through Systems (HVAC)	CTCG
463025	463025	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463026	463026	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463027	463027	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463028	463028	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463029	463029	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463030	463030	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463031	463031	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463032	463032	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463033	463033	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463034	463034	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463035	463035	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463036	463036	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463037	463037	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT
463038	463038	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT
463039	463039	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QBAA
463040	463040	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA
463041	463041	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT
463042	463042	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT
463043	463043	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT
463044	463044	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT
512754	512754	Active	Anoka-Hennepin ISD 11	Landscaping/Athletic Field Irrigation	CTCG
676405	676405	Active	City of Anoka	Municipal/Public Water Supply	CTCW

Table 4

High Capacity Wells Within One Mile of the DWSMAs
City of Ramsey

Map ID[1]	Unique ID	Status	Permittee	Use	Aquifer
785266	785266	Active	Nathe, Joseph	Agricultural Crop Irrigation	QWTA
792110	792110	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA

[1] Map ID refers to Figure 4

Aquifer Codes:
CEMS = Eau Claire Formation – Mt. Simon Sandstone
CSLT = St. Lawrence Formation – Tunnel City Group
CTCG = Tunnel City Group
CTCW = Tunnel City Group – Wonewoc Sandstone
CMTS = Mt. Simon Sandstone
CWMS = Wonewoc Sandstone – Mt. Simon Sandstone
CWON = Wonewoc Sandstone
QWTA = Quaternary Water Table Aquifer

Figures

A - Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.

AE - The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.

X - Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.

- Municipal Well
- Railroad
- PWI Watercourse
- PWI Basin
- Ramsey DWSMA
- Nearby DWSMA
- Emergency Response Area
- Wellhead Protection Area
- Municipal Boundary
- PLS Section

FEMA Flood Zone

- A
- AE
- X

Aquifer Vulnerability

- Moderate

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

N

0 1,000 2,000

Feet

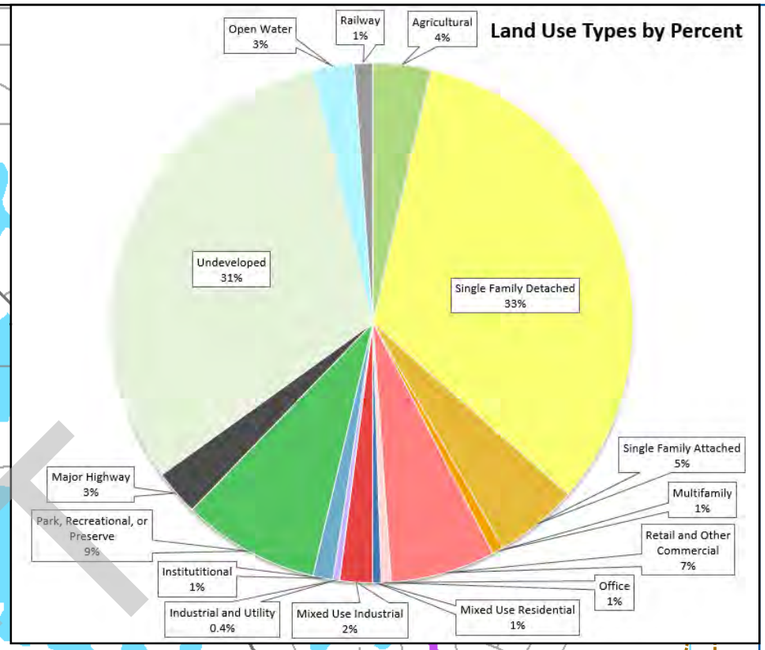
Image Source: FSA (2017)

MUNICIPAL WELLS, DWSMA, AND VULNERABILITY
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE 1

BARR

Barr Footer: ArcGIS 10.6.1, 2019-07-08 11:43 File: I:\Projects\23\02\10811\Maps\Reports\WHPPII_2019\Fig01 Municipal Wells_DWSMA and Vulnerability.mxd User: JJL2



Municipal Well

Ramsey DWSMA

Property Boundary

Municipal Boundary

Current Land Use*

- Single Family Detached
- Single Family Attached
- Multifamily
- Retail and Other Commercial
- Office
- Mixed Use Residential
- Mixed Use Industrial
- Industrial and Utility
- Institutional
- Park, Recreational or Preserve
- Major Highway
- Railway
- Agricultural
- Undeveloped
- Water

* Land Use Data (Met Council 2016 Generalized Land Use)

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

N

0 1,000 2,000

Feet

CURRENT LAND USE
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE 2

Barr Footer: ArcGIS 10.6.1, 2019-07-03 12:47 File: I:\Projects\23\02\1081\Maps\Reports\WHPPII 2019\Fig02 Current Land Use.mxd User: JJL2

Municipal Well

Ramsey DWSMA

Municipal Boundary

Planned Future Land Use (2040)*

Business Park

Closed Landfill

Commercial

HDR

LDR

MDR

MU

Office Park

Park

Public

Rural Developing

Rural Preserve

* Planned future land use shown within Ramsey provided by City of Ramsey. Planned future land use shown within Anoka provided by the Metropolitan Council 2030 generalized planned land use dataset.

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

N

0 1,000 2,000

Feet

PLANNED FUTURE LAND USE
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE 3

Permitted Water Appropriations (MPARS) Within 1 Mile of DWSMA

- Agricultural Crop Irrigation
- Golf Course Irrigation
- Landscaping/Athletic Field Irrigation
- Municipal/Public Water Supply
- Non-metallic Processing (rubber, plastic, glass, concrete)
- Once-through Systems (HVAC)
- Pollution Containment
- Ramsey DWSMA
- Municipal Boundary

Aquifer Vulnerability

- Moderate

463042 - MPARS Location PCSI ID (PCSI ID refers to Table C-9)

0 1,000 2,000
Feet

HIGH CAPACITY WELLS WITHIN ONE MILE OF THE DWSMA
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE 4

Appendix A

MDH Well Records

Unique No. 00161441

County Name Anoka

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

Update Date 2014/08/18

Entry Date 1991/04/15

Township Name	Township	Range	Dir	Section	Subsection
	32	25	W	25	DCCAAC

Well Depth		Depth Completed		Date Well Completed
448	ft.	323	ft.	1984/11/09

Well Name RAMSEY 1

Drilling Method Non-specified Rotary

Well Owner's Name RAMSEY 1

RAMSEY MN 55303

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No

From ft. to ft.

Use community supply(municipal)

Contact's Name CITY OF RAMSEY
15153 NOWTHEN NW BL
RAMSEY MN 55303

Casing **Drive Shoe?** ☐ Yes ☐ N

Hole Diameter

in. to 243 ft

in. to 323 ft

Casing Diameter **Weight(lbs/ft)**

14 in. to 243 ft 54.57

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
DRIFT	BROW	MEDIUM	0	206
FRANCONIA	GREE	SOFT	206	234
IRONTON-GALESVILLE FOR	BRN/W	SOFT	234	323
IRONTON-GALESVLLE FOR	BRN/W	SOFT	323	396
IRONTON-GALESVILLE FOR	BRN/W	SOFT	396	430
EAU CLAIRE FORMATION			430	448

Screen N

Open Hole From 243 ft. to 323 ft.

Make Type

Static Water Level 9.5 ft. from Land surface Date 1984/11/07

PUMPING LEVEL (below land surface)

24 ft. after 24 hrs. pumping 500 g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☑ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	243	10	Y

Nearest Known Source of Contamination

2000 ft. direction E type BOW

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☑ Not Installed Date Installed N

Mfr name

Model HP Volts

Drop Pipe Length ft. Capacity g.p.m

Type

Any not in use and not sealed well(s) on property? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

M.G.S. NO.2127.

TEST HOLE FOR WELL WAS GAMMA LOGGED TO 448 FT. ON 9-26-84.

SAMPLES ARE OF A POOR QUALITY; A LOT OF DRIFT CONTAMINATION.

USGS Quad: Anoka Elevation 860

Aquifer: CTCG Alt Id: 85-6005

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 27058

License Business Name

Name of Driller NUBBE, D.

Report Copy

Unique No. 00161441

County Name Anoka

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2014/08/18

Entry Date 1991/04/15

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	25	DCCAAC	448	ft.	323	ft.	1984/11/09

Well Name RAMSEY 1 **Lic. Or Reg. No.** 27058 **Name of Driller** NUBBE, D.

USGS Quad Anoka **Elevation** 860 **Aquifer** CTCG **Alternative Id** 85-6005

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
DRIFT	BROWN	MEDIUM	0	206	QUUU	DRFT		
QUUU = Quaternary deposit	DRFT = drift							
FRANCONIA	GREEN	SOFT	206	234	CSTL	SLSN	DLMT	
CSTL = St.Lawrence Formation	SLSN = siltstone				DLMT = dolomite			
IRONTON-GALESVILLE FORMATIONS	BRN/WHT	SOFT	234	323	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone				SHLE = shale		DLMT = dolomite	
IRONTON-GALESVLLE FORMATIONS	BRN/WHT	SOFT	323	396	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone				SHLE = shale		DLMT = dolomite	
IRONTON-GALESVILLE FORMATIONS	BRN/WHT	SOFT	396	430	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							
EAU CLAIRE FORMATION			430	448	CECR	SHLE	SNDS	
CECR = Eau Claire Formation	SHLE = shale				SNDS = sandstone			

Unique No. 00416183

County Name Anoka

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

Update Date 2019/06/04

Entry Date 1991/04/15

Township Name	Township	Range	Dir	Section	Subsection
	32	25	W	36	ABABBB

Well Depth		Depth Completed		Date Well Completed
320	ft.	320	ft.	1987/03/23

Well Name RAMSEY 2

Drilling Method Non-specified Rotary

Contact's Name CITY OF RAMSEY
15153 NOWTHEN NW BL
RAMSEY MN 55303

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Well Owner's Name RAMSEY 2

RAMSEY MN 55303

Use community supply(municipal)

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
in. to 320 ft

Casing Diameter **Weight(lbs/ft)**
14 in. to 240 ft 54.57

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
CLAY	BROW		0	2
CLAY, GRAVEL & SAND	BROW		2	20
GRAVEL & SAND	DK. BR		20	68
GRAVEL & CLAY	DK. BR		68	92
CLAY & GRAVEL	BROW		92	136
SANDSTONE & SHALE	GRN/B		136	150
SANDSTONE & SHALE	GRN/B		150	170
SHALE & SANDSTONE	BLU/G		170	190
SANDSTONE & SHALE	VARIE		190	198
SANDSTONE & SHALE	VARIE		198	220
SANDSTONE & SHALE	VARIE		220	226
SANDSTONE & SHALE	TAN/BL		226	236
SANDSTONE & SHALE	TAN/BL		236	282
SANDSTONE & SHALE	TAN/BL		282	305
SHALE & SANDSTONE	GRN/B		305	320

Screen N

Open Hole From 240 ft. to 320 ft.

Make Type

Static Water Level 9.5 ft. from Land surface Date 1987/03/23

PUMPING LEVEL (below land surface)
47.9 ft. after hrs. pumping 490 g.p.m.

Well Head Completion
Pitless adapter mfr BAKER Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	239	216	S

Nearest Known Source of Contamination
ft. direction type

Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ Not Installed Date Installed Y
Mfr name GRUNDFOS
Model SP75-4 HP 25 Volts 480
Drop Pipe Length 52 ft. Capacity 350 g.p.m
Type S

Any not in use and not sealed well(s) on property? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GAMMA LOGGED 11-24-1986. M.G.S. NO. 2593.

USGS Quad: Anoka Elevation 863
Aquifer: CTCG Alt Id: 85-6005

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 71015
License Business Name
Name of Driller HEISEL, M.

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00416183
County Name Anoka

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2019/06/04
Entry Date 1991/04/15

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	36	ABABBB	320	ft.	320	ft.	1987/03/23

Well Name RAMSEY 2 **Lic. Or Reg. No.** 71015 **Name of Driller** HEISEL, M.

USGS Quad Anoka **Elevation** 863 **Aquifer** CTCG **Alternative Id** 85-6005

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
CLAY	BROWN		0	2	RUUB	SOIL	ORGD	CLAY
RUUB = Recent deposit-brown	SOIL = soil			ORGD = organic deposits			CLAY = clay	
CLAY, GRAVEL & SAND	BROWN		2	20	QPUB	CLAY	GRVL	SAND
QPUB = pebbly sand/silt/clay-brown	CLAY = clay			GRVL = gravel			SAND = sand	
GRAVEL & SAND	DK. BRN		20	68	QHUB	GRVL	SAND	
QHUB = sand +larger-brown	GRVL = gravel			SAND = sand				
GRAVEL & CLAY	DK. BRN		68	92	QPUB	GRVL	CLAY	
QPUB = pebbly sand/silt/clay-brown	GRVL = gravel			CLAY = clay				
CLAY & GRAVEL	BROWN		92	136	QPUB	CLAY	GRVL	
QPUB = pebbly sand/silt/clay-brown	CLAY = clay			GRVL = gravel				
SANDSTONE & SHALE	GRN/BLU		136	150	QUUU	SAND	CLAY	BLDR
QUUU = Quaternary deposit	SAND = sand			CLAY = clay			BLDR = boulder	
SANDSTONE & SHALE	GRN/BLU		150	170	CJDN	SNDS		
CJDN = Jordan Sandstone	SNDS = sandstone							
SHALE & SANDSTONE	BLU/GRN		170	190	CJDN	SNDS		
CJDN = Jordan Sandstone	SNDS = sandstone							
SANDSTONE & SHALE	VARIED		190	198	CJDN	SNDS		
CJDN = Jordan Sandstone	SNDS = sandstone							
SANDSTONE & SHALE	VARIED		198	220	CJDN	SNDS	SLSN	
CJDN = Jordan Sandstone	SNDS = sandstone			SLSN = siltstone				
SANDSTONE & SHALE	VARIED		220	226	CSTL	SNDS	SHLE	DLMT
CSTL = St.Lawrence Formation	SNDS = sandstone			SHLE = shale			DLMT = dolomite	
SANDSTONE & SHALE	TAN/BLU		226	236	CSTL	DLMT	SLSN	
CSTL = St.Lawrence Formation	DLMT = dolomite			SLSN = siltstone				
SANDSTONE & SHALE	TAN/BLU		236	282	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone			SHLE = shale			DLMT = dolomite	
SANDSTONE & SHALE	TAN/BLU		282	305	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone			SHLE = shale			DLMT = dolomite	

Unique No. 00416183

County Name Anoka

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2019/06/04

Entry Date 1991/04/15

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	36	ABABBB	320	ft.	320	ft.	1987/03/23

Well Name RAMSEY 2 **Lic. Or Reg. No.** 71015 **Name of Driller** HEISEL, M.

USGS Quad Anoka **Elevation** 863 **Aquifer** CTCG **Alternative Id** 85-6005

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
SHALE & SANDSTONE	GRN/BRN		305	320	CTCG	SNDS	SHLE	DLMT

CTCG = Tunnel City Group SNDS = sandstone SHLE = shale DLMT = dolomite

Unique No. 00580303

County Name Anoka

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

Update Date 2019/06/04

Entry Date 1997/05/09

Township Name	Township	Range	Dir	Section	Subsection
	32	25	W	28	AACDDA

Well Depth		Depth Completed		Date Well Completed
345	ft.	345	ft.	1997/02/25

Well Name RAMSEY 3

Drilling Method Cable Tool

Well Owner's Name RAMSEY 3
7301 INDUSTRY NW AV
RAMSEY MN 55303

Drilling Fluid Bentonite

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Contact's Name CITY OF RAMSEY
15153 RAMSEY NW BL
RAMSEY MN 55303

Use community supply(municipal)

Casing **Drive Shoe?** ☐ Yes ☐ N

Hole Diameter
0 in. to 222 ft
0 in. to 345 ft

Casing Diameter **Weight(lbs/ft)**
30 in. to 165 ft 118.6
24 in. to 222 ft 94.6

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SAND	BROW	MEDIUM	0	48
CLAY & ROCKS	BROW	MEDIUM	48	66
SAND/GRAVEL/ROCKS	BROW	MEDIUM	66	87
SANDY CLAY	BROW	MEDIUM	87	121
GRAVEL/ROCKS	BROW	MEDIUM	121	153
CLAY	GRAY	MEDIUM	153	188
FRANCONIA SANDSTONE	GRN/G	MEDIUM	188	290
IRONTON GALESVILLE	TAN/B	MEDIUM	290	335
IRONTON GALESVILLE	TAN/B	MEDIUM	335	345

Screen N

Open Hole From 222 ft. to 345 ft.

Make Type

Static Water Level 26 ft. from Land surface Date 1997/03/21

PUMPING LEVEL (below land surface)
93.1 ft. after 7 hrs. pumping 1875 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	218	20.3	Y

Nearest Known Source of Contamination
ft. direction type
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ Not Installed Date Installed Y
Mfr name AMERICAN TURBINE
Model 12-H-150-4 HP 125 Volts 480
Drop Pipe Length 120 ft. Capacity E+03 g.p.m
Type T

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

M.G.S. NO. 3744.

GAMMA LOGGED 10-3-1996 BY GEOSPHERE MIDWEST.

USGS Quad: Anoka Elevation 878
Aquifer: CTCE Alt Id: 85-6005

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 71015
License Business Name
Name of Driller COX, A.

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00580303
County Name Anoka

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2019/06/04
Entry Date 1997/05/09

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	28	AACDDA	345	ft.	345	ft.	1997/02/25

Well Name RAMSEY 3 **Lic. Or Reg. No.** 71015 **Name of Driller** COX, A.

USGS Quad Anoka **Elevation** 878 **Aquifer** CTCE **Alternative Id** 85-6005

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
SAND	BROWN	MEDIUM	0	48	QFUB	SAND		
QFUB = sand-brown	SAND = sand							
CLAY & ROCKS	BROWN	MEDIUM	48	66	QPUB	CLAY	COBL	
QPUB = pebbly sand/silt/clay-brown	CLAY = clay			COBL = cobble				
SAND/GRAVEL/ROCKS	BROWN	MEDIUM	66	87	QHUB	SAND	GRVL	COBL
QHUB = sand +larger-brown	SAND = sand			GRVL = gravel			COBL = cobble	
SANDY CLAY	BROWN	MEDIUM	87	121	QLUB	CLAY	SAND	
QLUB = clay+sand-brown	CLAY = clay			SAND = sand				
GRAVEL/ROCKS	BROWN	MEDIUM	121	153	QGUB	GRVL	COBL	
QGUB = gravel (+larger)-brown	GRVL = gravel			COBL = cobble				
CLAY	GRAY	MEDIUM	153	188	QCUG	CLAY		
QCUG = clay-gray	CLAY = clay							
FRANCONIA SANDSTONE	GRN/GRY	MEDIUM	188	290	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone			SHLE = shale			DLMT = dolomite	
IRONTON GALESVILLE	TAN/BRN	MEDIUM	290	335	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							
IRONTON GALESVILLE	TAN/BRN	MEDIUM	335	345	CECR	SNDS	SHLE	
CECR = Eau Claire Formation	SNDS = sandstone			SHLE = shale				

Unique No. 00580313

County Name Anoka

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

Update Date 2014/08/18

Entry Date 2000/03/20

Township Name	Township	Range	Dir	Section	Subsection
	32	25	W	28	ABCCCC

Well Depth		Depth Completed		Date Well Completed
321	ft.	321	ft.	1998/04/29

Well Name RAMSEY 4

Drilling Method Cable Tool

Well Owner's Name RAMSEY 4
7601 INDUSTRY NW AV
RAMSEY MN 55303

Drilling Fluid
Water

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Contact's Name CITY OF RAMSEY
15153 RAMSEY NW BL
RAMSEY MN 55303

Use community supply(municipal)

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
in. to 191 ft
in. to 321 ft

Casing Diameter **Weight(lbs/ft)**
30 in. to 137 ft 118.65
24 in. to 191 ft 94.62

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SAND	BLACK	SOFT	0	5
SAND & GRAVEL	BROW	MEDIUM	5	36
SANDY CLAY AND ROCKS	BROW	MEDIUM	36	39
GRAVEL AND ROCKS	BROW	MEDIUM	39	45
SANDY CLAY AND ROCKS	BROW	MEDIUM	45	55
SAND AND GRAVEL	BROW	MEDIUM	55	70
SANDY CLAY AND GRAVEL	BROW	HARD	70	120
GRAVEL & SANDSTONE	BRN/R	MEDIUM	120	126
SANDSTONE AND SHALE	TAN/R	HARD	126	165
SANDSTONE AND SHALE	BLU/G	HARD	165	275
SANDSTONE AND SHALE	WHITE	MED-HRD	275	292
SHALE	BROW	HARD	292	296
SANDSTONE	WHITE	MEDIUM	296	321
SHALE	BLU/G	HARD	321	321

Screen N

Open Hole From 191 ft. to 321 ft.

Make

Type

Static Water Level 18 ft. from Land surface Date 1998/04/15

PUMPING LEVEL (below land surface)
118 ft. after 48 hrs. pumping 2300 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	191	15	Y

Nearest Known Source of Contamination
50 ft. direction SW type O
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr name
Model HP Volts
Drop Pipe Length ft. Capacity g.p.m
Type

Any not in use and not sealed well(s) on property? ☑ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

USGS Quad: Anoka Elevation 873
Aquifer: CTCW Alt Id: 85-6005

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 71701
License Business Name
Name of Driller MCALPINE, J.

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00580313

County Name Anoka

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

Update Date 2014/08/18

Entry Date 2000/03/20

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	28	ABCCCC	321	ft.	321	ft.	1998/04/29

Well Name RAMSEY 4 **Lic. Or Reg. No.** 71701 **Name of Driller** MCALPINE, J.

USGS Quad Anoka **Elevation** 873 **Aquifer** CTCW **Alternative Id** 85-6005

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
SAND	BLACK	SOFT	0	5	QFUB	SAND		
QFUB = sand-brown	SAND = sand							
SAND & GRAVEL	BROWN	MEDIUM	5	36	QHUB	SAND	GRVL	
QHUB = sand +larger-brown	SAND = sand				GRVL = gravel			
SANDY CLAY AND ROCKS	BROWN	MEDIUM	36	39	QPUB	CLAY	COBL	SAND
QPUB = pebbly sand/silt/clay-brown	CLAY = clay				COBL = cobble		SAND = sand	
GRAVEL AND ROCKS	BROWN	MEDIUM	39	45	QGUB	GRVL	COBL	
QGUB = gravel (+larger)-brown	GRVL = gravel				COBL = cobble			
SANDY CLAY AND ROCKS	BROWN	MEDIUM	45	55	QPUB	CLAY	COBL	SAND
QPUB = pebbly sand/silt/clay-brown	CLAY = clay				COBL = cobble		SAND = sand	
SAND AND GRAVEL	BROWN	MEDIUM	55	70	QHUB	SAND	GRVL	
QHUB = sand +larger-brown	SAND = sand				GRVL = gravel			
SANDY CLAY AND GRAVEL	BROWN	HARD	70	120	QPUB	CLAY	GRVL	SAND
QPUB = pebbly sand/silt/clay-brown	CLAY = clay				GRVL = gravel		SAND = sand	
GRAVEL & SANDSTONE	BRN/RED	MEDIUM	120	126	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone				SHLE = shale		DLMT = dolomite	
SANDSTONE AND SHALE	TAN/RED	HARD	126	165	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone				SHLE = shale		DLMT = dolomite	
SANDSTONE AND SHALE	BLU/GRN	HARD	165	275	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone				SHLE = shale		DLMT = dolomite	
SANDSTONE AND SHALE	WHITE	MED-HRD	275	292	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							
SHALE	BROWN	HARD	292	296	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							
SANDSTONE	WHITE	MEDIUM	296	321	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							
SHALE	BLU/GRN	HARD	321	321	CECR	SHLE	SNDS	
CECR = Eau Claire Formation	SHLE = shale				SNDS = sandstone			

Unique No. 00593672

County Name Anoka

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

Update Date 2014/08/18

Entry Date 2001/06/06

Township Name	Township	Range	Dir	Section	Subsection
	32	25	W	28	ACCCBD

Well Depth		Depth Completed		Date Well Completed
316	ft.	316	ft.	2000/10/10

Well Name RAMSEY 5

Drilling Method Cable Tool

Contact's Name CITY OF RAMSEY
15153 RAMSEY NW BL
RAMSEY MN 55303

Drilling Fluid Bentonite

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Well Owner's Name RAMSEY 5
7500 116 CR
RAMSEY MN 55303

Use community supply(municipal)

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
in. to 316 ft

Casing Diameter **Weight(lbs/ft)**

30	in. to	178	ft	118.55
24	in. to	215	ft	94.6

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SAND & GRAVEL	BROW	SOFT	0	60
SAND, CLAY, ROCKS	BROW	HARD	60	165
GRAVEL/ ROCKS	BROW	HARD	165	172
FRANCONIA	GRN/B	MEDIUM	172	175
FRANCONIA	GRN/B	MEDIUM	175	264
IRONTON/ GALES	GRY/B	MEDIUM	264	276
IRONTON/ GALES	GRY/G	HARD	276	316

Screen N
Make Type

Open Hole From 210 ft. to 316 ft.

Static Water Level 24 ft. from Land surface Date 2000/09/26

PUMPING LEVEL (below land surface)
139.3 ft. after 9 hrs. pumping 1000 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	210	15	Y

Nearest Known Source of Contamination
2500 ft. direction E type SDF
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr name
Model HP Volts
Drop Pipe Length ft. Capacity g.p.m
Type

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

M.G.S. NO. 4052.

GAMMA LOGGED 8-24-2000.

USGS Quad: Anoka Elevation 869
Aquifer: CTCW Alt Id: 1020035S06

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 71015
License Business Name
Name of Driller COX, A.

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00593672

County Name Anoka

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2014/08/18

Entry Date 2001/06/06

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	28	ACCCBD	316	ft.	316	ft.	2000/10/10

Well Name RAMSEY 5 **Lic. Or Reg. No.** 71015 **Name of Driller** COX, A.

USGS Quad Anoka **Elevation** 869 **Aquifer** CTCW **Alternative Id** 1020035S06

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
SAND & GRAVEL	BROWN	SOFT	0	60	QHUB	SAND	GRVL	
QHUB = sand +larger-brown	SAND = sand			GRVL = gravel				
SAND, CLAY, ROCKS	BROWN	HARD	60	165	QPUB	SAND	CLAY	COBL
QPUB = pebbly sand/silt/clay-brown	SAND = sand			CLAY = clay			COBL = cobble	
GRAVEL/ ROCKS	BROWN	HARD	165	172	QGUB	GRVL	COBL	
QGUB = gravel (+larger)-brown	GRVL = gravel			COBL = cobble				
FRANCONIA	GRN/BRN	MEDIUM	172	175	QUUB	DRFT		
QUUB = Quat. deposit-brown	DRFT = drift							
FRANCONIA	GRN/BLU	MEDIUM	175	264	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone			SHLE = shale			DLMT = dolomite	
IRONTON/ GALES	GRY/BRN	MEDIUM	264	276	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							
IRONTON/ GALES	GRY/GRN	HARD	276	316	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							

Unique No. 00706840

County Name Anoka

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

Update Date 2015/04/16

Entry Date 2006/01/25

Township Name	Township	Range	Dir	Section	Subsection
	32	25	W	28	BCDCDA

Well Depth		Depth Completed		Date Well Completed
390	ft.	390	ft.	2005/08/10

Well Name RAMSEY 6

Drilling Method Cable Tool

Well Owner's Name
7849 CIVIC CENTER DR
RAMSEY MN

Drilling Fluid
Bentonite

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Use community supply(municipal)

Contact's Name CITY OF RAMSEY - OLSEN, BRIAN
15153 NORTHERN NW BL 763-433-9825
RAMSEY MN 55303

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
in. to 374 ft
in. to 390 ft

Casing Diameter **Weight(lbs/ft)**
30 in. to 178 ft 118.65
24 in. to 282 ft 94.6

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SAND	BROW	SOFT	0	27
SAND & GRAVEL	GRY/R	MEDIUM	27	60
SANDY CLAY & ROCKS	GRAY	HARD	60	101
SAND/CLAY/GRAVEL	TAN	M.HARD	101	123
FINE SAND/GRAVEL	TAN	HARD	123	170
ST LAWRENCE	BLU/G	M.HARD	170	200
FRANCONIA	GRN/B	M.HARD	200	337
IRONTON GALESVILLE	WHITE	M.HARD	337	385

Screen N

Open Hole From 282 ft. to 390 ft.

Make Type

Static Water Level 37 ft. from Land surface Date 2005/04/26

PUMPING LEVEL (below land surface)
147.28 ft. after 8 hrs. pumping 990 g.p.m.

Well Head Completion
Pitless adapter mfr BAKER Model 9.5PS2426
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G		282	110	Y

Nearest Known Source of Contamination
114 ft. direction S type SEW
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Mfr name GOULDS
Model .12MC-6 HP 150 Volts 460
Drop Pipe Length 100 ft. Capacity E+03 g.p.m
Type S

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GAMMA LOGGED 2-15-2005. M.G.S. NO. 4498. LOGGED BY JIM TRAEN.

USGS Quad: Anoka Elevation 873
Aquifer: CTCW Alt Id: 4498

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 71015
License Business Name
Name of Driller COLBURN, S.

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00706840

County Name Anoka

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2015/04/16

Entry Date 2006/01/25

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	28	BCDCDA	390	ft.	390	ft.	2005/08/10

Well Name RAMSEY 6 **Lic. Or Reg. No.** 71015 **Name of Driller** COLBURN, S.

USGS Quad Anoka **Elevation** 873 **Aquifer** CTCW **Alternative Id** 4498

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
SAND	BROWN	SOFT	0	27	QFUB	SAND		
QFUB = sand-brown	SAND = sand							
SAND & GRAVEL	GRY/RED	MEDIUM	27	60	QHUU	SAND	GRVL	
QHUU = sand +larger	SAND = sand			GRVL = gravel				
SANDY CLAY & ROCKS	GRAY	HARD	60	101	QPUB	CLAY	SAND	COBL
QPUB = pebbly sand/silt/clay-brown	CLAY = clay			SAND = sand			COBL = cobble	
SAND/CLAY/GRAVEL	TAN	M.HARD	101	123	QPUB	SAND	CLAY	GRVL
QPUB = pebbly sand/silt/clay-brown	SAND = sand			CLAY = clay			GRVL = gravel	
FINE SAND/GRAVEL	TAN	HARD	123	170	QHUB	SAND	GRVL	
QHUB = sand +larger-brown	SAND = sand			GRVL = gravel				
ST LAWRENCE	BLU/GRN	M.HARD	170	200	CSTL	DLMT	SLSN	
CSTL = St.Lawrence Formation	DLMT = dolomite			SLSN = siltstone				
FRANCONIA	GRN/BLU	M.HARD	200	337	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone			SHLE = shale			DLMT = dolomite	
IRONTON GALESVILLE	WHITE	M.HARD	337	385	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							

Unique No. 00743832

County Name Anoka

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

Update Date 2015/04/16

Entry Date 2007/01/12

Township Name	Township	Range	Dir	Section	Subsection
	32	25	W	20	DDAADC

Well Depth		Depth Completed		Date Well Completed
332	ft.	332	ft.	2007/05/20

Well Name RAMSEY 7

Drilling Method Cable Tool

Contact's Name CITY OF RAMSEY
7550 SUNWOOD DR
RAMSEY MN 55303

Drilling Fluid
Bentonite

Well Hydrofractured? ☐ Yes ☑ No
From ft. to ft.

Well Owner's Name RAMSEY 7
15030 ARMSTRONG BL
RAMSEY MN 55303

Use community supply(municipal)

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
in. to 332 ft

Casing Diameter **Weight(lbs/ft)**
30 in. to 122 ft 118.65
24 in. to 216 ft 94.6

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SAND	BROW	SOFT	0	18
SAND & GRAVEL	GRY/R	MEDIUM	18	57
SANDY CLAY/ROCKS	GRAY	HARD	57	113
ST. LAWRENCE SANDSTON	BLU/G	M.HARD	113	123
FRANCONIA SANDSTONE	TAN/G	HARD	123	180
FRANCONIA SHALE	TAN/G	M.HARD	180	264
IRONTON GALESVILLE	GRY/G	MEDIUM	264	312
EAU CLAIRE TRANSITION	GRAY	HARD	312	332

Screen N
Make Type

Open Hole From 210 ft. to 332 ft.

Static Water Level 25 ft. from Land surface Date 2007/03/19

PUMPING LEVEL (below land surface)
159.9 ft. after 8 hrs. pumping 1100 g.p.m.

Well Head Completion
Pitless adapter mfr BAKER Model 9.5PS2426
Casing Protection Y ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G		210	25	Y

Nearest Known Source of Contamination
114 ft. direction S type SEW
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ Not Installed Date Installed Y
Mfr name GOULDS
Model 12MC-X HP 150 Volts 460
Drop Pipe Length 180 ft. Capacity E+03 g.p.m
Type S

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GAAMMA LOGGED 1-11-2007. M.G.S. NO. 4657. LOGGED BY JIM TRAEN.

USGS Quad: Anoka Elevation 882
Aquifer: CTCW Alt Id: 85-6005

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 1431
License Business Name
Name of Driller COX, A.

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00743832

County Name Anoka

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2015/04/16

Entry Date 2007/01/12

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	20	DDAADC	332	ft.	332	ft.	2007/05/20

Well Name RAMSEY 7 **Lic. Or Reg. No.** 1431 **Name of Driller** COX, A.

USGS Quad Anoka **Elevation** 882 **Aquifer** CTCW **Alternative Id** 85-6005

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
SAND	BROWN	SOFT	0	18	QFUB	SAND		
QFUB = sand-brown	SAND = sand							
SAND & GRAVEL	GRY/RED	MEDIUM	18	57	QHUU	SAND	GRVL	
QHUU = sand +larger	SAND = sand		GRVL = gravel					
SANDY CLAY/ROCKS	GRAY	HARD	57	113	QPUG	CLAY	COBL	SAND
QPUG = pebbly sand/silt/clay-gray	CLAY = clay		COBL = cobble			SAND = sand		
ST. LAWRENCE SANDSTONE	BLU/GRN	M.HARD	113	123	CSTL	SLSN	DLMT	
CSTL = St.Lawrence Formation	SLSN = siltstone		DLMT = dolomite					
FRANCONIA SANDSTONE	TAN/GRN	HARD	123	180	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone		SHLE = shale			DLMT = dolomite		
FRANCONIA SHALE	TAN/GRN	M.HARD	180	264	CTCG	SHLE	SNDS	DLMT
CTCG = Tunnel City Group	SHLE = shale		SNDS = sandstone			DLMT = dolomite		
IRONTON GALESVILLE	GRY/GRN	MEDIUM	264	312	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							
EAU CLAIRE TRANSITION	GRAY	HARD	312	332	CECR	SHLE	SNDS	
CECR = Eau Claire Formation	SHLE = shale		SNDS = sandstone					

Unique No. 00743833

County Name Anoka

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

Update Date 2015/04/16

Entry Date 2007/01/24

Township Name	Township	Range	Dir	Section	Subsection
	32	25	W	28	BABDBD

Well Depth		Depth Completed		Date Well Completed
354	ft.	354	ft.	2007/05/20

Well Name RAMSEY 8

Drilling Method Cable Tool

Contact's Name CITY OF RAMSEY
7550 SUNWOOD DR
RAMSEY MN 55303

Drilling Fluid
Bentonite

Well Hydrofractured? ☐ Yes ☑ No
From ft. to ft.

Well Owner's Name RAMSEY 8
14779 ZEOLITE NW ST
RAMSEY MN 55303

Use community supply(municipal)

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
in. to 303 ft
in. to 354 ft

Casing Diameter **Weight(lbs/ft)**
30 in. to 222 ft 118.65
24 in. to 245 ft 94.6

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SAND & GRAVEL	GRAY	SOFT	0	79
SAND/GRAVEL/CLAY	RED/B	MEDIUM	79	135
SANDY CLAY/GRAVEL	GRAY	HARD	135	173
FINE SAND/GRAVEL	BRN/Y	M.HARD	173	213
FRANCONIA SANDSTONE	TAN/G	M.HARD	213	274
IRONTON GALESVILLE	GRY/G	M.HARD	274	344
EAU CLAIRE TRANSITION	RED/G	HARD	344	354

Screen N
Make Type

Open Hole From 240 ft. to 354 ft.

Static Water Level 15 ft. from Land surface Date 2007/01/24

PUMPING LEVEL (below land surface)
179 ft. after 8 hrs. pumping 1900 g.p.m.

Well Head Completion
Pitless adapter mfr BAKER Model 9.5PS2426
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G		240	14	Y

Nearest Known Source of Contamination
114 ft. direction S type SEW
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ Not Installed Date Installed
Mfr name GOULDS
Model 16BHC-5 HP 200 Volts 460
Drop Pipe Length 187 ft. Capacity E+03 g.p.m
Type S

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GAMMA LOGGED 1-24-2007. M.G.S. NO. 4664. LOGGED BY JIM TRAEN.

USGS Quad: Anoka Elevation 871
Aquifer: CTCW Alt Id: 85-6005

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 71015
License Business Name
Name of Driller COLBURN, S.

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00743833

County Name Anoka

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2015/04/16

Entry Date 2007/01/24

Township Name	Township	Range	Dir	Section	Subsection	Well Depth		Depth Completed		Date Well Completed
	32	25	W	28	BABDBD	354	ft.	354	ft.	2007/05/20

Well Name RAMSEY 8 **Lic. Or Reg. No.** 71015 **Name of Driller** COLBURN, S.

USGS Quad Anoka **Elevation** 871 **Aquifer** CTCW **Alternative Id** 85-6005

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO	STRAT	LITH PRIM	LITH SEC	LITH MINOR
SAND & GRAVEL	GRAY	SOFT	0	79	QHUG	SAND	GRVL	
QHUG = sand +larger-gray	SAND = sand			GRVL = gravel				
SAND/GRAVEL/CLAY	RED/BRN	MEDIUM	79	135	QPUU	SAND	GRVL	CLAY
QPUU = pebbly sand/silt/clay	SAND = sand			GRVL = gravel			CLAY = clay	
SANDY CLAY/GRAVEL	GRAY	HARD	135	173	QPUG	CLAY	GRVL	SAND
QPUG = pebbly sand/silt/clay-gray	CLAY = clay			GRVL = gravel			SAND = sand	
FINE SAND/GRAVEL	BRN/YEL	M.HARD	173	213	QHUU	SAND	GRVL	
QHUU = sand +larger	SAND = sand			GRVL = gravel				
FRANCONIA SANDSTONE	TAN/GRN	M.HARD	213	274	CTCG	SNDS	SHLE	DLMT
CTCG = Tunnel City Group	SNDS = sandstone			SHLE = shale			DLMT = dolomite	
IRONTON GALESVILLE	GRY/GRN	M.HARD	274	344	CWOC	SNDS		
CWOC = Wonewoc Sandstone	SNDS = sandstone							
EAU CLAIRE TRANSITION	RED/GRN	HARD	344	354	CECR	SHLE	SNDS	
CECR = Eau Claire Formation	SHLE = shale			SNDS = sandstone				

Appendix B

Part 1 Wellhead Protection Plan Amendment

Amendment to the Wellhead Protection Plan

Part I

Wellhead Protection Area Delineation
Drinking Water Supply Management Area Delineation
Well and Drinking Water Supply Management Area Vulnerability Assessments

For

City of Ramsey

July 2019

DEPARTMENT OF HEALTH

CLEAN WATER LAND & LEGACY AMENDMENT

Introduction

This summary documents the amended delineation of the wellhead protection area (WHPA), drinking water supply management area (DWSMA), emergency response area (ERA), and the vulnerability assessments for the city of Ramsey's drinking water supply wells and DWSMA (PWSID 1020035). These were initially prepared in September of 2007 and must now be amended as the public water supply's wellhead plan has nearly expired.

Protection Area Boundaries

The city of Ramsey's DWSMA is unchanged (Figures 1a and 1b). The amount of water pumped by the city's wells has decreased since the previous WHPA delineations. However, the well interference along with the change in pumping configuration has warranted the delineation of an updated WHPA. The WHPA still represent a 10-year time of travel.

Vulnerability Assessments and Management Implications

Both the western field (Wells 3, 4, 5, 6, 7, and 8) and the eastern field (Wells 1 and 2) are considered to be vulnerable. While there is no change in vulnerability status for the western DWSMA, the rising tritium in Well #1 argues for a more protective DWSMA vulnerability rating. Therefore, the DWSMA vulnerability status around Wells 1 and 2 changed from low to moderate. The aquifer used by the city of Ramsey wells has some level of geologic protection, with areas of moderate vulnerability. The primary threats are other wells that penetrate the city's aquifer, as well as large capacity above and below ground chemical storage tanks. The remainder of the city's wellhead protection plan will outline strategies for effectively managing contaminant sources within the DWSMA.

Documentation

MDH rule criteria and guidelines were used to assess the adequacy of the existing delineations and vulnerability assessments and evaluate the impact of newer data. The results of this assessment showed that a full update of the Part 1 plan is not necessary and instead this brief synopsis is adequate to amend the Part 1 plan. The documentation of this assessment is available from MDH upon request.

Wellhead Protection (WHP) Plan Amendment Worksheet
Delineation of the WHPA and DWSMA and Vulnerability Assessments

Step 1 – Has there been any change in well status for this system since the last WHP plan? Status changes include construction of new wells, reconstruction of existing wells, change in usage for existing wells (e.g., primary versus emergency), adjustments in location of existing wells, and changes in well vulnerability. Use Table 1 to evaluate. Vulnerability has changed at Wells 1 and 2, and 8.

Table 1 - Water Supply Well Information

Local Well ID	Unique No.	Use / Status[1]	Casing Diameter (inches)	Casing Depth (feet)	Well Depth (feet)	Date Constructed/ Reconstructed	Well Vulnerability	Aquifer	Location change? (Y/N)	If well is new, is it in the ERA?
1	161441	Primary	14	243	323	1984	**Vulnerable**	CTCG - Tunnel City Group	N	NA
2	416183	Primary	14	240	320	1987	**Vulnerable**	CTCG - Tunnel City Group	N	NA
3	580303	Primary	30 x 24	222	345	1997	Vulnerable	CTCW - Tunnel City-Wonewoc	N	NA
4	580313	Primary	30 x 24	191	321	1998	Vulnerable	CTCW - Tunnel City-Wonewoc	N	NA
5	593672	Primary	30 x 24	215	316	2000	Vulnerable	CTCW - Tunnel City-Wonewoc	N	NA
6	706840	Primary	30 x 24	282	390	2005	Not Vulnerable	CTCW - Tunnel City-Wonewoc	N	NA
7	743832	Primary	30 x 24	216	332	2007	Not Vulnerable	CTCW - Tunnel City-Wonewoc	N	NA
8	743833	Primary	30 x 24	245	354	2007	**Vulnerable**	CTCW - Tunnel City-Wonewoc	N	NA

Note: 1. Primary (P), Emergency Backup (E), Seasonal Use (S) Use ~~strike out~~ to identify wells that are no longer included in the amended wellhead protection plan. **Use bolding to note changes to 1) use/status and vulnerability, 2) well location and 3) identify wells that have been added since the current plan was approved.**

Step 2 - What changes have occurred to the amount pumped from each PWS well?

Table 3 - Annual Volume of Water Discharged from Water Supply Wells

Local Well ID	Unique No.	2011	2012	2013	2014	2015	Highest annual rate from previous 5 years	Pumping Amount Used in Previous Delineation	% Change
1	161441	**134.541**	100.231	76.124	104.23	129.575	**134.541**	168.438	-20%
2	416183	0.116	**5.462**	0.065	0.045	0.031	**5.462**	28.785	-81%
3	580303	140.514	**164.864**	40.799	30.863	127.767	**164.864**	188.592	-13%
4	580313	58.523	62.362	123.903	**194.032**	118.314	**194.032**	155.853	24%
5	593672	30.297	59.23	47.32	58.707	**76.277**	**76.277**	154.455	-51%
6	706840	120.12	**138.082**	106.876	119.842	122.664	**138.082**	110.183	25%
7	743832	88.424	60.305	**118.526**	95.657	11.063	**118.526**	130.029	-9%
8	743833	**117.421**	29.151	74.06	57.914	14.744	**117.421**	188.592	-38%

(Expressed as million gallons. Bolding indicates greatest pumping volume)

Step 3 – Other than changes to the city wells identified above, what information is new since the previous delineation?

Chemistry – compare data for select parameters (or standard suite?) for user-specified or standardized time periods (ex., 8 years preceding previous delineation compared with everything since then). Select parameters could be via a checklist like Al's current Arcmap tool. Standard suite could be tritium, stable isotopes and assessment monitoring suite. This may include city wells and a search of the entire DWSMA or DWSMA plus buffer. Could be presented in tabular form as below:

Total coliform were absent in all wells. Well 7 and 8 did not have tritium results when the original part 1 was completed in 2007. They were sampled in 2012. Well 7 non vulnerable status was confirmed by the tritium sampling. Well 8 on the other hand went from non-vulnerable to vulnerable because tritium was found at 2.5 TU in the 2012 sample. Wells 1, 3, 4, 5, and 6 were resampled and analyzed for tritium in 2017.

The 2017 tritium sampling confirmed the vulnerability of Wells 3, 4, 5, and 6. Wells 1 and 2 vulnerability status changed from non-vulnerable to vulnerable because tritium was found at 1.6 TU and 2.4 TU in the 2006 and 2017 Well 1 samples, respectively.

Table 2 – Updated Chemistry Information

Unique Number	Isotope Data/GW Class	New detection of SDWA contaminants	Previous contaminants no longer detected	Geologic Sensitivity	Depth	Aquifer

Geology/Boundary Conditions – identify if any of the following are new since the last Part 1 approval date:

List of published reports or studies: e.g. County Geologic Atlas, regional hydrologic studies:

Anoka County Geologic Atlas Part A and Part B were published in 2013 and 2016, respectively. The Geologic Atlas does not suggest that flow boundaries need to be reassessed. In addition, no new geologic data was added that suggest a change in the 2007 interpretation of the DWSMA vulnerability.

Wells within 1mile of DWSMA, (tabular listing with depth/aquifer info for quick assessment) from:

Located CWI
Unlocated CWI
Wells DB (disclosures, maintenance permits) listed by TRS

Five new bedrock wells within DWSMA: three are CTCG wells (2 DO and 1 IR), All three wells are 4-inch wells. The new IR well was included when simulating the impact of high capacity wells on the WHPA.

PCSI (I don't think these currently make it to CWI)

Recharge info (compare USGS pub date to old Part 1). **No Change**

Soils map.

Other Pumping Wells - What changes have occurred regarding other high-capacity wells (i.e., wells not from amending PWS)? See if Al can compare info from this version of the table in previous Part 1 with what his search tool comes up with now to show what's new. Also, expand his search tool to look not only at SWUDS, but also CWI for codes like IRR or diam. > 6 inch).

Table 3 - Annual Volume of Water Discharged from Other High-Capacity Wells within 1.5 miles of DWSMA

Local Well ID	Unique No.	2012	2013	2014	2015	2016	5-yr Average Pumping	Pumping Amount Used in Previous Delineation	% Change
City of Anoka	201218	144.32	223.292	275.949	260.948	283.052	237.51	140.98	68.47 %
City of Anoka	676405	140.113	167.438	135.399	165.015	148.41	151.28	Not Modeled	100 %
City of Anoka	224625	142.564	165.708	134.539	103.357	89.905	127.21	116.31	9.38 %
Dayton, City Of	752128	18.501	21.211	9.078	30.066	36.895	23.15	Not Modeled	100 %
Anoka-Henn ISD 11	512754	12.024	11.091	8.128	9.251	8.284	9.76	10.21	-4.49 %
Ramsey, City of	773399	0	0	0	0	8.201	1.64	Not Modeled	100 %
Links Northfork Gc Llc	463021	47.768	33.953	19.125	31.361	7.884	28.02	43.14	-35.05 %
Ramsey, City Of	150546	0	12.978	12.978	11.423	6.125	8.70	23.27	-62.60 %
Marshall Concrete Products	122215	1.201	1.378	1.341	1.398	1.508	1.37	1.82	-24.95 %
Kurak, Thomas	417499	0	0	0	0.504	1.023	0.31	Not Modeled	100 %

(Expressed as gallons. **Bolding indicates greatest pumping volume**. Use strike out to show wells that are no longer used and italics to indicate wells that are new.)

Other high-capacity wells within 1.5 miles of the DWSMA, used in the 2007 delineation, have increased or decreased their pumping rate. In addition, some wells were not used in the previous delineation. All high capacity wells within 1.5 miles of the DWSMA were included in the new model well file and pumping rates were updated to reflect the average 2012 – 2016 pumping rates. This new well file was used in the model to estimate the new capture zone.

As depicted in Figure 1a, the new capture zone is not very different from the old one for Wells 3, 5, 6, and 7. The pumping rates used in the delineation have increased in Well 4 and decreased in Well 8 since the previous delineation. As a result, the predicted capture zone is larger for Well 4 and smaller for Well 8.

A smaller capture zone was delineated for Wells 1 and 2 (Figure 1b). Wells 1 and 2 are in a separate well field east of Wells 3 through 8. They were not delineated with the model used in 2007 but were delineated using a different model under a previous plan (Robertson, 2001). Despite the differences that were noted above, the new capture zones are still contained by the existing DWSMAs (Figures 1a and 1b).

Step 4 - Using the information assembled in the previous steps, is there information documenting either 1) new hydrogeologic flow boundaries or 2) changes to the hydrogeologic flow boundaries that were included in the current WHPA delineation that are significant enough to require re-delineating the WHPA?

■ No

☐Yes *(Describe the changes to the hydrogeologic flow boundaries that have been identified. Examples include re-interpretations of aquifer geometry, hydraulic connections to surface water features or recharge.)*

Step 5 – Has there been a change in the ambient groundwater flow field, either due to hydrologic conditions, addition of new data or re-interpretation of old data?

■ No

☐Yes *(Describe the change.)*

Step 6 – Does the previous WHPA delineation need to be modified to include either or both of the following? *(check as needed)*

☐ Fracture flow delineation component *(For example, has borehole geophysical work identified specific flow horizons in a fractured aquifer, or were secondary porosity conditions not addressed in the previous delineation according to the current standards?)*

☐ Surface water contribution area *(For example, has monitoring data showed that a suspected hydrologic feature is not functioning as a flow boundary or was the need for a conjunctive delineation not considered in the previous delineation?)*

If either are checked, describe why this additional work is necessary for the plan amendment.

Step 7 – Are there any new aquifer test or specific capacity data that will result in a new representative transmissivity value? (May be able to hit off of Justin's aquifer test spreadsheet and Rich's specific capacity spreadsheet to assess this)

■ No, the current reference transmissivity value(s) for the aquifer(s) is still valid; re-approve the current aquifer test plan. **Original plan is on file and was reapproved on November 14, 2017.**

☐Yes, the reference transmissivity value has been changed or added for the following aquifers (specify which aquifer and ft^2/day). Approve and file the amended aquifer test plan.

Step 8 – Was uncertainty adequately addressed in the original WHPA delineation? For example, was variability in aquifer transmissivity and groundwater flowfield addressed explicitly? The latter must include +/- 10% if uniform flow approach was used.

■ No changes are needed to address uncertainty. **The 2007 plan also included an uncertainty analysis that was that was assessed by varying various parameters such as hydraulic conductivity, recharge, and river bed conductance. A series of 11 scenarios were modeled and the final wellhead protection area was obtained by merging the capture zones for all the simulations. The 2017 assessment was performed in the same manner. The results of the capture zone for the 11 scenarios are shown in Figures 1a and 1b for the west and east wellfields, respectively. All captures zones are within the existing DWSMA. The existing DWSMA reflects the computation that would result from the use of a time of travel of 12 years approximately.**

☐ Yes, the WHPA must be amended to address uncertainty. Please specify.

Step 9A – What was the original ToT? **10 Years**

Step 9B -- Is there an opportunity to adjust the delineation ToT to maintain the same DWSMA geometry?

☐ No

■ Yes **12 years for Wells 1 through 8;**

Step 10 - Do any of the previous steps indicate the need to redefine the WHPA?

☐ No, proceed to Step 11.

■ Yes

The pumping rates used in the delineation have increased in Well 4 and decreased in Well 8 since the previous delineation. As a result, the predicted capture zone is larger for Well 4 and smaller for Well 8.2 years for Wells 1 through 8. The city of Ramsey indicated that they plan on continuing to pump more water at Well 4 than at Well 8.

In addition, a smaller capture zone is delineated for Wells 1 and 2 using the more recent groundwater model.

Because the previous WHPA was not representative of the existing pumping configuration, a new wellhead protection area is proposed (Figures 2a and b for west and east wellfield, respectively).

The DWSMA remains unchanged and reflects the capture zone that would result from the use of a time of travel of 12 years approximately.

Step 11 – Is the WHPA delineation method that was used for the current plan still adequate to address modifications that have been identified in any of the previous steps?

■ Yes. **The original model is based on a MODFLOW model developed by the consultant for the Tunnel City and Wonewoc Sandstones. It was imported in a recent version of the pre- and post-processor GMS (ver. 10.3). The model runs in MODFLOW 2000**

☐ No (update the delineation method/model as needed – there must be a runnable version of the model in a useable code so results can be validated).

Step 12 - Do the existing DWSMA boundaries need to be re-defined?

■ No. **The new WHPA has been redefined using an updated version of the 2007 model. It was redefined in the same manner as in 2007by concatenating the capture zone results of 11 scenarios. The 2017 WHPA is still contain within the existing DWSMA.** Congratulations – you may use the EZ amendment form to document the amended Part 1 and file this worksheet to document the basis for using it.

☐ Yes, the amended WHPA does not extend beyond the current DWSMA boundaries; however the existing DWSMA boundaries can be reduced based on new information such as parcel data. Congratulations – you may use the EZ amendment form to document the amended Part 1 and file this worksheet to document the basis for using it.

☐ Yes, the amended WHPA does extend beyond the current DWSMA boundaries. Create a new Part 1 report.

Step 13 – Does information exist to support an updated DWSMA vulnerability assessment?

☐ No, the geographic extent of the DWSMA is not changing and no new hydrogeologic, chemical or isotopic data exist to justify a change.

■ Yes, the geographic extent of the DWSMA is changing and/or new hydrogeologic, chemical or isotopic data exist to justify a change.
L-scores were regenerated at wells using the CWI data available in 2017. City wells were analyzed for tritium in 2012 and 2017. Review of the existing geologic information and recent tritium sampling at the city wells did not change the DWSMA vulnerability status around Wells 3, 4, 5, 6, 7, and 8. The rising tritium in Well 1 argues for a more protective DWSMA vulnerability rating. Therefore, the DWSMA vulnerability status around Wells 1 and 2 changed from low to moderate.

If yes, what information new information is available that may change the DWSMA vulnerability assessment?
(*Check all that apply)*

☐ Updated soils or geological information

■ Updated water quality data from within the DWSMA

☐ Updated inventory of current and historical land uses

☐ Other *(specify)*

Note: If DWSMA vulnerability changes, you may still use the EZ amendment form. If the change is to a single vulnerability rating that covers the entire DWSMA, this can be addressed in the text. If the new DWSMA vulnerability is variable, it must be shown in a figure that is attached to the report form.

Step 14 – Is the existing Part 1 WHP plan (i.e., documentation of the delineations and the vulnerability assessments) adequate so that only changes to the WHPA and DWSMA need be addressed?

☐ No, the Part 1 report must be brought up to current standards.

■ Yes, any changes to the WHPA, DWSMA or delineation criteria can be addressed by using the EZ amendment template.

Step 15 – Is the assessment of data elements conducted for the previous documentation effort still valid?

■ No, the assessment of data elements must be brought up to current standards. Attach the data elements assessment table to this document and proceed to use the EZ amendment template.

☐ Yes, any changes to the WHPA, DWSMA or delineation criteria can be addressed by using the EZ amendment template.

Form completed by

Hydrologist: Amal Djerrari

Table 4 - Assessment of Data Elements

Data Element	Present and Future Implications				Data Source
	Use of the Well s	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Precipitation					
Geology					
Maps and geologic descriptions	M	H	H	H	MGS
Subsurface data	M	H	H	H	MGS, MDH, CWI
Borehole geophysics	M	H	H	H	MGS
Surface geophysics	L	L	L	L	Not Available
Maps and soil descriptions					
Eroding lands					
Water Resources					
Watershed units					
List of public waters					
Shoreland classifications					
Wetlands map					
Floodplain map					
Land Use					
Parcel boundaries map	L	H	L	L	Anoka County
Political boundaries map	L	L	L	L	
Public Land Survey map	L	H	L	L	MDH
Land use map and inventory					
Comprehensive land use map					
Zoning map					
Public Utility Services					
Transportation routes and corridors					
Storm/sanitary sewers and PWS system map					
Oil and gas pipelines map					
Public drainage systems map/list					
Records of well construction, maintenance, and use	H	H	H	H	Ramsey, CWI, MDH
Surface Water Quantity					
Stream flow data					
Ordinary high water mark data					

Data Element	Present and Future Implications				Data Source
	Use of the Wells	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Permitted withdrawals					
Protected levels/flows					
Water use conflicts					
Groundwater Quantity					
Permitted withdrawals	H	H	H	H	DNR, Ramsey
Groundwater use conflicts	L	L	L	L	DNR
Water levels	H	H	H	H	CWI, MDH
Surface Water Quality					
Stream and lake water quality management classification					
Monitoring data summary					
Groundwater Quality					
Monitoring data	H	H	H	H	MDH
Isotopic data	H	H	H	H	MDH
Tracer studies	H	H	H	H	Not Available
Contamination site data	M	M	M	M	Not Available
Property audit data from contamination sites					
MPCA and MDA spills/release reports					

Definitions Used for Assessing Data Elements:

High (H) - the data element has a direct impact

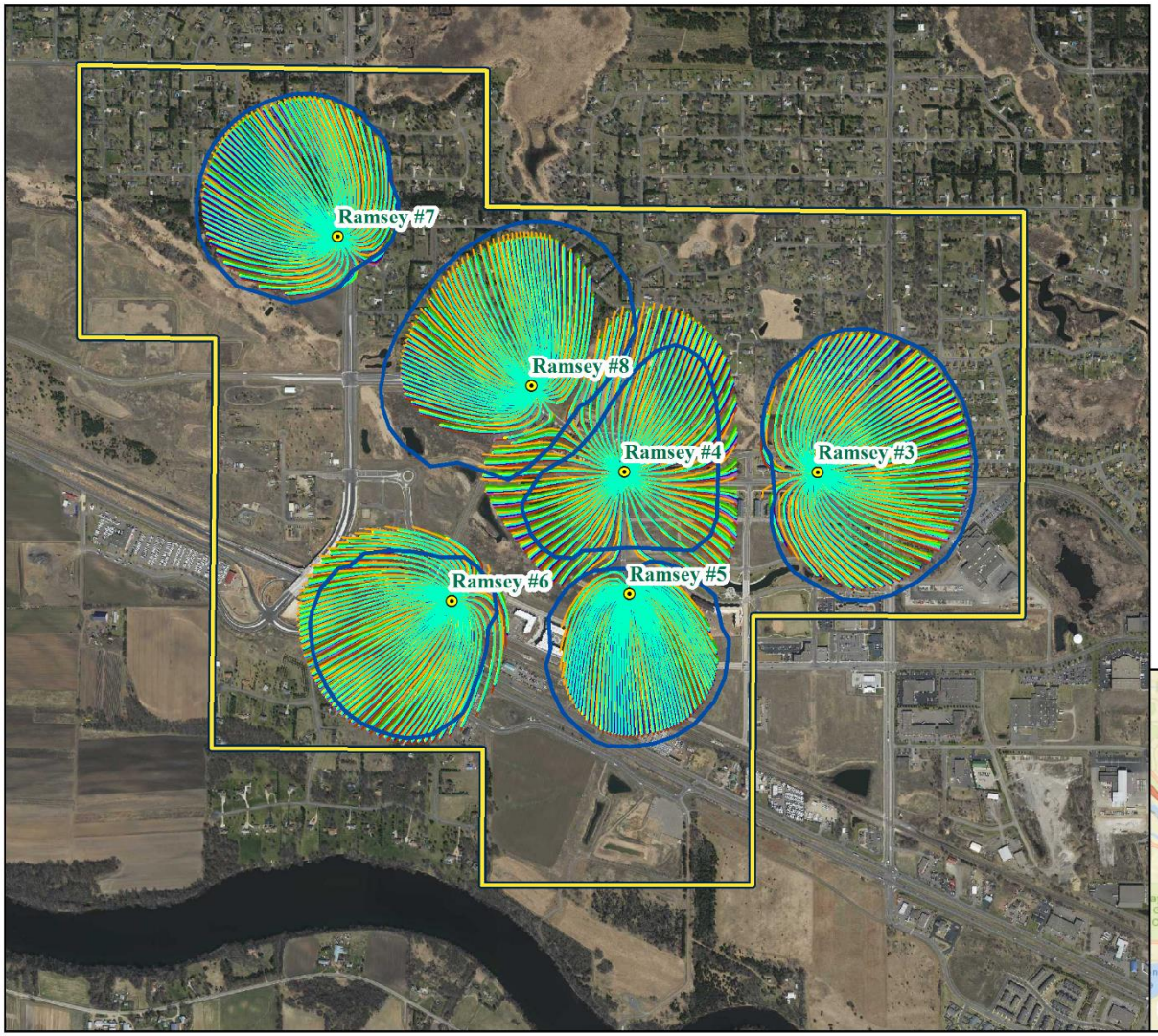
Moderate (M) - the data element has an indirect or marginal impact

Low (L) - the data element has little if any impact

Shaded - the data element was not required by MDH for preparing the WHP plan

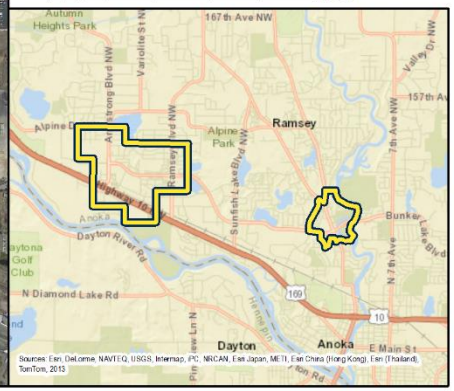
Ramsey
Anoka County
Minnesota

Figure 1a
Porous Media Capture Zones with Updated Well Pumping Rates
Sensitivity Analysis
City of Ramsey



- Primary Well
- 2007 Wellhead Protection Area (WHPA)
- Drinking Water Supply Management Area (DWSMA)
- 10-yr TT Pathlines (Base Case Run1)
- 10-yr TT Pathlines (Sensitivity Run 2)
- 10-yr TT Pathlines (Sensitivity Run 3)
- 10-yr TT Pathlines (Sensitivity Run 4)
- 10-yr TT Pathlines (Sensitivity Run 5)
- 10-yr TT Pathlines (Sensitivity Run 6)
- 10-yr TT Pathlines (Sensitivity Run 7)
- 10-yr TT Pathlines (Sensitivity Run 8)
- 10-yr TT Pathlines (Sensitivity Run 9)
- 10-yr TT Pathlines (Sensitivity Run 10)
- 10-yr TT Pathlines (Sensitivity Run 11)

0 250500 1,000 1,500 2,000 2,500
Feet

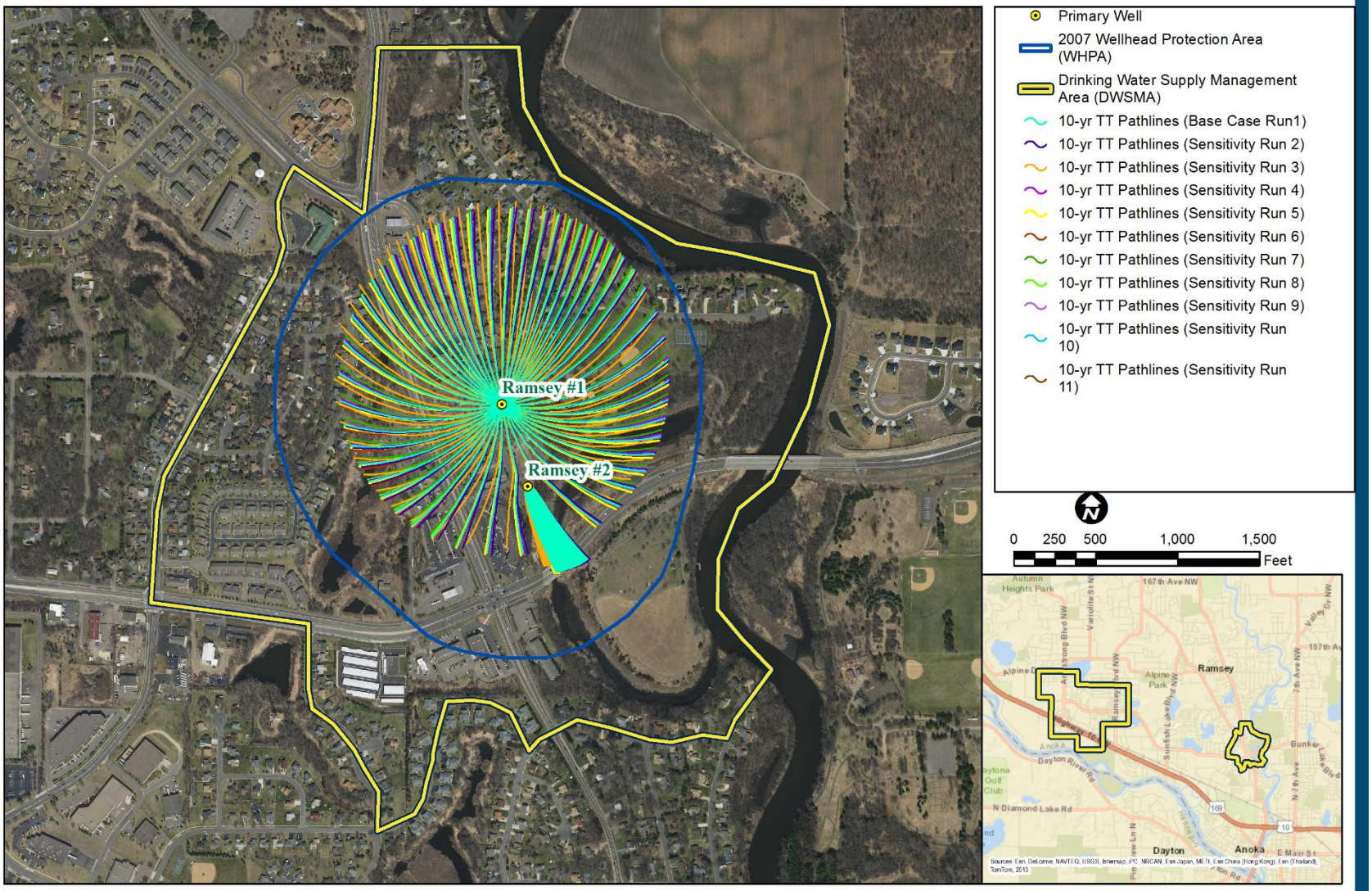


Public Water Supplier: Ramsey (1020035)

Date: 12/15/2017

Ramsey
Anoka County
Minnesota

Figure 1b
Porous Media Capture Zones with Updated Well Pumping Rates
Sensitivity Analysis
City of Ramsey

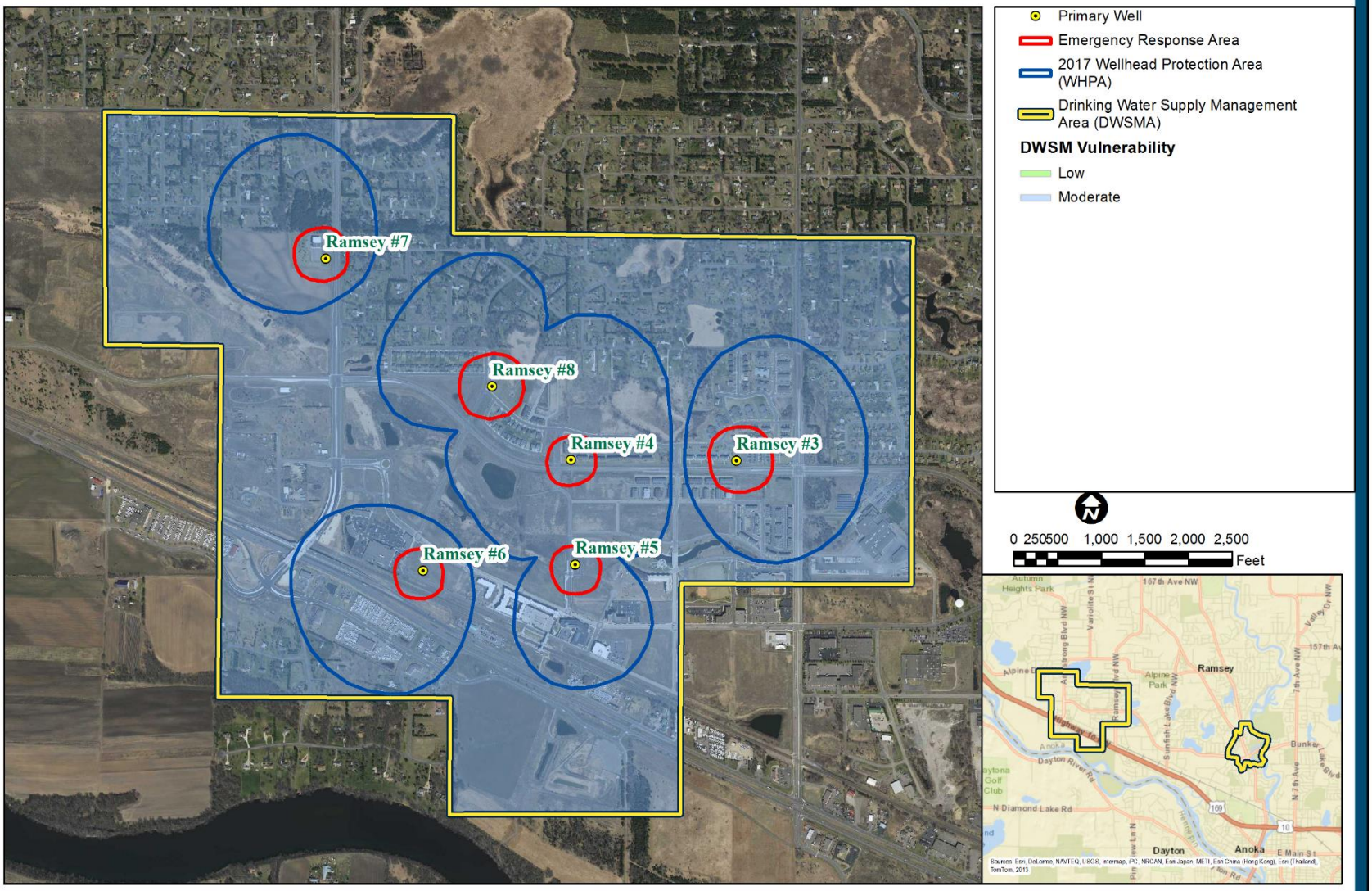


Public Water Supplier: Ramsey (1020035)

Date: 12/15/2017

Ramsey
Anoka County
Minnesota

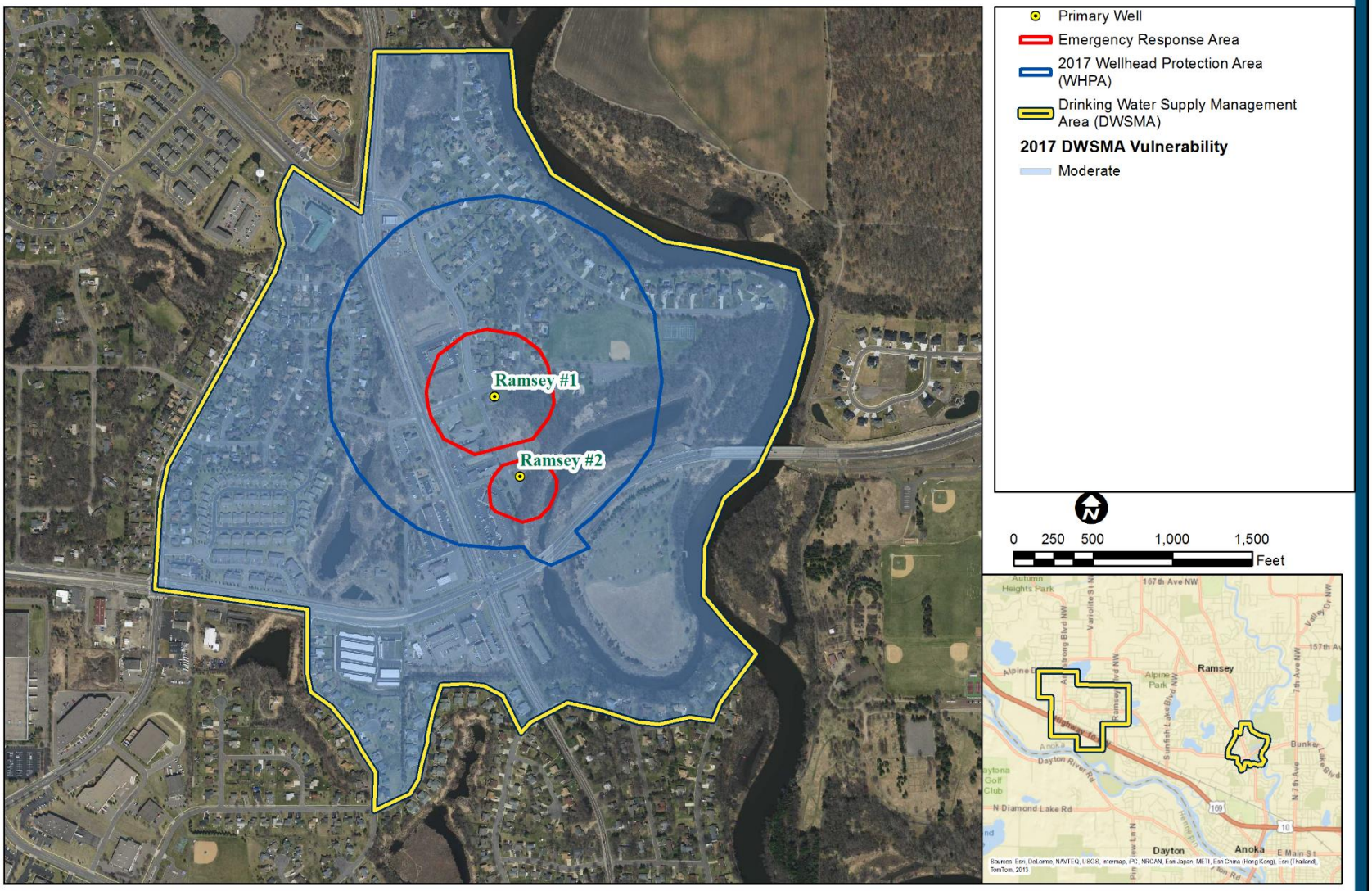
Figure 2a
Wellhead Protection Area and Drinking Water Supply Management Area
City of Ramsey



Public Water Supplier: Ramsey (1020035) Date: 12/15/2017

Ramsey
Anoka County
Minnesota

Figure 2b
Wellhead Protection Area and Drinking Water Supply Management Area
City of Ramsey



Appendix C

Data Elements Assessment

Appendix C

Data Elements Assessment

Contents

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C1.0 Data Elements Assessment

The data elements and their assessments required to be included in the Wellhead and Source Water Protection Plan amendment (WHPP) for the City of Ramsey (Public Water Supply 1020035) are discussed in this appendix. Data elements related to the physical environment, land use, water quantity, and water quality required for this WHPP for the City of Ramsey were specified in the April 4, 2019 Scoping 2 Decision Notice from the Minnesota Department of Health (MDH, 2019).

The City of Ramsey (City) currently operates eight municipal water supply wells (Table C-1). All eight wells are completed in the Tunnel City-Wonewoc aquifer.

Two Drinking Water Supply Management Areas (DWSMAs) have been delineated for Ramsey (MDH, 2018). The DWSMAs encompasses the Wellhead Protection Areas (WHPAs) for the Ramsey water supply wells. The West DWSMA is entirely within the Ramsey city limits. The East DWSMA extends beyond the city limits into the city of Anoka. The locations of the Ramsey DWSMAs are shown on Figure C-1.

C1.1 Physical Data Elements

Physical data elements required to be considered for this Plan amendment are identified in the Scoping 2 Decision Notice (MDH, 2019). Per the Scoping 2 Decision Notice, geology and water resources data elements were required to be considered during development of the Plan amendment.

C1.1.1 Geology and Hydrogeology

Existing information on the geology and hydrogeology in the vicinity of Ramsey was used to define the extent of the source water aquifer used by the City, delineate the WHPA, and to assess the vulnerability of the public water supply wells and the aquifer in the DWSMA.

As indicated on Figure C-2, the uppermost bedrock unit in the vicinity of the Ramsey DWSMAs varies with location and includes the following Cambrian-age units: Jordan Sandstone, St. Lawrence Formation, and Tunnel City Group (Mossler, 2011). Depth to bedrock beneath the Ramsey DWSMAs ranges from approximately 110 feet to approximately 210 feet. One fault has been mapped (see Mossler, 2011) that intersects the eastern edge of the East DWSMA.

Quaternary-age unconsolidated sediments overlie the bedrock in the vicinity of Ramsey (Meyer, 2011). Most of these sediments in the vicinity of Ramsey are terrace deposits from the ancestral Mississippi River. Small, discontinuous areas are covered with peat and muck deposits.

Well construction information for the Ramsey municipal wells is summarized in Table C-1 and copies of the MDH well records are presented in Appendix A.

Information regarding the geology and hydrogeology of the area was used to assess the vulnerability to contamination of the source water aquifer within the DWSMA (see MDH, 2018). The information is consistent with the classification of the susceptibility to contamination of the source water aquifer within the DWSMAs as Moderate.

C1.1.2 Water Resources

Per the April 4, 2019 Scoping 2 Decision Notice (MDH, 2019) surface water resources must be evaluated to determine if they could potentially apply to this Plan.

The West DWSMA lies within the Mississippi River – Twin Cities watershed (Mississippi River level 4 subwatershed). The East DWSMA lies within the Rum River watershed.

A portion of Jeglens Marsh and some small ponds are the only surface water bodies within the DWSMAs. Wetland areas are also present in the DWSMA. The Rum River is adjacent to the East DWSMA. As shown on Figure C-1, FEMA Flood Zone A for Jeglen's Marsh overlaps a small percentage of the land within the West DWSMA and FEMA Flood Zone AE for the Rum River overlaps a portion of the East DWSMA. Some of the surface water bodies in the DWSMA meet the definition of public waters in Minnesota Statutes Section 103G.005, subdivision 15. In addition, there are areas adjacent to water bodies in the DWSMA that meet the definition of shoreland pursuant to Minnesota Statutes Sections 103F.201 to 103F.221 and consistent with Minnesota Rules part 6120.3300. The City manages the floodplain and shoreland areas as specified in Chapter 117 Article II Division 4, Subdivisions III and IV of the City Code.

Geologic conditions in and around the City's DWSMAs result in the aquifer vulnerability in the DWSMAs being classified as Moderate. Based on the aquifer vulnerability classification, it considered to be possible that issues related to surface water resources could have some effect on the water quality in the source water aquifer and should be considered in the development of the management strategies for the DWSMA. The quality of the source water is dependent on the quality of its recharge. Existing surface water management programs in the DWSMAs address water quality and, therefore, reduce the potential negative effects that infiltrating surface waters may have on the source water aquifers. The City believes that existing surface water management programs are adequate to address surface water quality in the DWSMA and to ensure that aquifer recharge and water availability do not become an issue for the City.

C1.2 Land Use Data Elements

The April 4, 2019 Scoping 2 Decision Notice requires land use data elements to be considered during development of this Plan amendment. Land use and public utility services within the DWSMAs are discussed in this section. In Part 1 of this Plan amendment, roads, property parcels, and the Rum River were used to define the DWSMA boundaries (MDH, 2018).

Commented [JG1]: City reviewers please confirm that this statement is accurate or provide the appropriate edit to correct the statement.

C1.2.1 Current Land Use

Figure C-3 shows the current land uses within the DWSMA. Property parcels that lie partially or completely within the DWSMAs are shown on Figure C-3. Land uses found within the DWSMAs include, but are not limited to, residential, undeveloped land, parks, commercial/industrial, and agricultural. Figure C-4 shows the current zoning within the DWSMAs.

C.1.2.1.1 Potential Contaminant Source Inventory

A potential contaminant source inventory (PCSI) was conducted within the DWSMAs. As shown on Figure C-1, the aquifer vulnerability in the DWSMAs is classified as Moderate. The types of potential

contaminant sources that must be inventoried in DWSMAs vary according to the aquifer vulnerability classification. For this Plan, the potential contaminant source types inventoried during the PCSI were those required by the MDH for areas in which aquifer vulnerability is classified as Moderate.

As shown in Table C-2, information on potential contaminant source locations was obtained from the following sources: Minnesota Department of Health (MDH), Minnesota Department of Natural Resources (MDNR), Minnesota Department of Public Safety (DPS), Minnesota Geological Survey (MGS), Minnesota Office of Pipeline Safety (MnOPS), Minnesota Pollution Control Agency (MPCA), Metropolitan Council, Minnesota Geospatial Information Office (MGIO), Minnesota Department of Transportation (MnDOT), and U.S. Environmental Protection Agency (USEPA) databases. Information from the various sources was compared to identify overlaps/duplications.

As part of the PCSI work, all identified potential contaminant source locations within the DWSMAs were verified to the extent possible with available information. As part of location verification, any inaccurate locations identified during the PCSI (i.e., any potential contaminant source entities that appeared to map on the wrong property parcel) were corrected to the extent possible based on available information. For future updates of this Plan, the City will access available data sources and maintain as accurate and up to date a potential contaminant source database as possible in its wellhead protection file.

The City maintains current records of the conditions around the municipal water supply wells. Water system operators check the area around each well routinely and report any conditions of concern. A potential contaminant source inventory for the Inner Wellhead Management Zone (IWMZ) around each of the municipal supply wells was completed on June 12, 2019. Copies of the IWMZ inventory reports are presented in Attachment C-1.

Properties identified as potential sources of contamination during the PCSI are listed in Table C-3 through Table C-8 as follows:

- Wells – Table C-3
- Potential Class V wells – Table C-4
- Storage tanks and LUST sites – Table C-5
- Chemical storage sites – Table C-6
- Spill locations – Table C-7
- Potential contaminant site Locations – Table C-8

Results of this inventory indicate the presence of several potential contaminant source properties within the DWSMAs. Locations of potential contaminant sources are shown on Figures C-5 through C-10 as follows:

- Well locations – Figure C-5
- Potential Class V Well locations – Figure C-6
- Storage tank and LUST sites – Figure C-7
- Chemical storage sites – Figure C-8
- Spill locations – Figure C-9
- Potential contaminant site locations – Figure C-10

These potential contaminant sources have been considered in the development of the management strategies for the DWSMA.

Potential contaminant source locations were verified, to the extent possible, during preparation of this Plan amendment (Table C-3 through Table C-8). Verification procedures used included matching mapped locations with addresses on MDH Well Records or State/County-issued permits or in County/State/Federal databases, published business addresses, property parcel addresses, local knowledge of City staff, or information from City files (note that not all verification procedures were used for each type of potential contaminant source). The data tables indicate the status of verification for each potential contaminant source location. New information developed on contaminant sources in the future will be verified as they are discovered as part of the WHPP implementation.

C.1.2.1.1.1 Wells

Wells located within the City's DWSMAs, in particular wells completed in or penetrating a source water aquifer (i.e., an aquifer from which the City's wells pump water), have the potential to be a pathway via which contamination could more rapidly reach the source water aquifer and the Ramsey municipal water supply wells; especially if the wells were not properly installed or have not been adequately maintained. Data obtained from the Minnesota County Well Index (CWI) during the PCSI indicates that there are 216 wells (this number does not include the eight Ramsey municipal wells) within the Ramsey DWSMAs (Figure C-5). Two hundred fourteen of these wells are identified as active. The status of the other two wells is unknown. Table C-3 lists the wells that were identified in the DWSMAs and indicates the aquifer in which each well is completed (if known), the date the well was completed (if known), and the status of the well (if known).

During the review of wells in the DWSMAs during the PCSI, 102 sealed wells were identified. Per the April 4, 2019 Scoping 2 Decision Notice, the sealed well locations are not included in the PCSI. However, since an improperly sealed well could act as a pathway for contaminants to migrate from the surface into the groundwater system the City believes it is important to maintain a record of sealed well locations. Therefore, sealed well locations in the DWSMAs are shown in Attachment C-2.

As indicated in Table C-3, uses for the wells in the DWSMAs that are known to be active (not including the City's water supply wells) include domestic (173), non-community public water supply (either transient or non-transient) (8), elevator (4), irrigation (2), commercial (2), industrial (1), test well (2), and monitor well (1). Eighty-five of these active wells are completed in or penetrate the source water aquifer. The aquifer in which 36 of the active wells are open is not available (i.e., not identified in the public database). In addition, the aquifer in which one of the unknown status wells is open is not available. Wells located within the DWSMAs, particularly those wells completed in or below the source water aquifer, have the potential for being a pathway for contamination to reach the source water aquifer and the Ramsey municipal water supply wells.

Available information from the Minnesota Department of Natural Resources' (MDNR) Minnesota Permitting and Reporting System (MPARS) database and the CWI was reviewed to identify active high capacity wells within a zone that includes the DWSMAs and extends one mile beyond the boundaries of the DWSMAs. The available information indicates there are 31 active high capacity well within the zone of interest in addition to the eight Ramsey municipal water supply wells. The high capacity well locations are shown on Figure C-11. High capacity wells are defined as wells that pump more than 1,000,000 gallons

per year or more than 10,000 gallons per day. Owners of these wells have obtained groundwater appropriation permits from the MDNR. A new high capacity well installed within or near the DWSMAs could, potentially, affect the boundaries of the DWSMAs. Uses for the wells not used for the City's municipal water supply include irrigation of various types, non-metallic processing, municipal water supply for the city of Anoka, pollution containment, and HVAC. (Table C-9). Six of the non-Ramsey high capacity wells pump from the City's source water aquifer and two of the wells penetrate the source water aquifer and pump from a deeper aquifer (Table C-9).

C.1.2.1.1.2 Potential Class V Well Locations

An inventory of locations where Class V wells may be present within the DWSMAs was done as part of the PCSI. Typical land uses associated with the presence of Class V wells include automobile service stations and repair shops. As defined by the U.S. Environmental Protection Agency, cesspools and large-scale septic systems that serve more than 20 people also are also included in the Class V well classification. During the PCSI, it was determined that there are seven separate property parcels where Class V wells may be present or may have been present based on the type of business that is or had operated there or the use of the property (see Table C-4 and Figure C-6). For all seven properties, the assessment of potential for presence of a Class V well is due to their association with automobile repair. All but one of these properties (PCSI ID 227 on Table C-4) are found in the EPA's Class V Wells database. MDH did not require that the City determine if Class V wells are actually present on any of these properties. Results of the location verification are summarized in Table C-4.

C.1.2.1.1.3 Storage Tanks

The PCSI identified 13 properties on which storage tanks are or have been located (see Table C-5 and Figure C-7). These properties include a total of 44 current or former storage tank locations. There are 17 currently active tanks located on a total of five of the properties (Table C-5). Products stored in the active storage tanks vary from site to site and include various fuels and used oil. As indicated in Table C-5, releases from the tanks were reported at nine of the properties. Available information indicates that the MPCA has closed the tank release responses at all nine of the properties for which releases were reported but the information does not indicate if the leaking tanks were removed or abandoned in place. Results of the location verification are summarized in Table C-5.

C.1.2.1.1.4 Chemical Storage Sites

The PCSI identified two property parcels within the DWSMAs on which chemical storage occurs (Table C-6 and Figure C-8). Note that one of these properties (PCSI ID 255 in Table C-6) was also identified in the storage tank data as a location of active above ground storage tanks and a location were a tank leak had occurred and underground storage tanks had been removed. Information on the chemicals stored at these locations is presented in Table C-6.

C.1.2.1.1.5 Spill Locations

The PCSI identified six properties within the DWSMAs where a contaminant spill occurred (Table C-7 and Figure C-9). A comparison of Tables C-7 and C-5 indicates that three of the six properties were also

identified as locations of leaking underground storage tanks (LUSTs). As shown in Table C-7, site status for all the spills is identified as closed.

C.1.2.1.1.6 Potential Contaminant Source Locations

The PCSI identified six properties within the DWSMAs that include sites where contamination may potentially be present (Table C-8 and Figure C-10). As shown in Table C-8, all six of the sites have been classified as brownfields sites by the MPCA.

C1.2.2 Transportation Routes

Major highways and railroads are used for transporting a wide variety of materials. Some of these materials, if spilled, have the potential to enter the groundwater system. U.S. Highway 10 and County Roads 56, 83, and 116 cross the West DWSMA. State Highway 47 and County Road 116 cross the East DWSMA. The BNSF Railroad tracks cross the southern portion of the West DWSMA. These transportation corridors are shown on Figure C-1. Given the Moderate aquifer vulnerability classification in the DWSMAs, if a spill in one of the transportation corridors were to occur and be cleaned up promptly it is considered to be unlikely that there would be any significant risk to the City's wells and water supply arising from the spill.

C1.2.3 Historical Land Use

Ramsey Township was named for Alexander Ramsey, the first Territorial Governor, in 1858. Settlement was driven by trading along the banks of the Mississippi River and farming in the area. The St. Paul & Pacific Railroad reached Ramsey in 1864. Ramsey was incorporated as a city in November 1974. Historical land use shown on Figure C-12 is for the year 1984. As indicated on Figure C-12, the historical land uses present in the DWSMAs are generally consistent with current land use. Using available information, historical land uses that might significantly affect the management strategies for the DWSMAs that are not currently present within the DWSMAs were not identified

The population of Ramsey increased by approximately 200% between 1860 and 1910. The population of Ramsey declined approximately 13% between 1910 and 1930 and then increased approximately 28% between 1930 and 1950. Ramsey has continuously grown since 1950. In 1950 the population was 670. By 2010, the population had grown to 23,668. In 2017 the population of Ramsey was estimated to be 25,581.

While it is possible that buried features such as old wells that were not properly sealed or unused underground storage tanks not listed in any available database could be present within the DWSMAs, available information does not suggest the presence of such features. There is no basis for a concerted search for such buried features with in the DWSMAs. If any such, currently unknown, features are to be located in the future it would most likely occur only if they are encountered during development or redevelopment of a property.

C1.3 Public Utilities

Management of the DWSMA in the City of Ramsey must consider and reflect available public utility services information.

As shown in Table C-1 , the eight Ramsey municipal wells pump from the Tunnel City-Wonewoc aquifer. Ramsey Wells 1 and 2 are located in the East DWSMA. Wells 3, 4, 5, 6, 7, and 8 are located in the West DWSMA. Well construction information for the City's municipal water supply wells wells is summarized in Table C-1 . Copies of the MDH Well Records for these wells are presented in Appendix A.

Per the April 4, 2019 Scoping 2 Decision Notice (MDH, 2018), a map of the City's water supply system is not included in this Plan to avoid potential security threats to the system.

C1.3.1 Pipelines

As shown on Figure C-13 no petroleum or natural gas pipelines cross the Ramsey DWSMAs. There is one natural gas pipeline that ends approximately 0.5 miles east of the East DWSMA. This pipeline does not present a potential risk to the DWSMA. The closest approach of a petroleum pipeline to the DWSMAs is approximately 5 miles to the southwest of the West DWSMA. The petroleum pipeline does not present a potential risk to the DWSMAs. The City will rely on State/Federal oversight and the management programs of the pipeline owners for proper operation and maintenance of the pipelines and response to releases from the pipelines. Therefore, additional measures in this Plan to address releases are not necessary.

C.1.3.2 Sewers

C.1.3.2.1 Sanitary Sewers

The City's sanitary sewer system is shown on Figure C-14.

An improperly designed or maintained sanitary sewer system may increase the chance for the release of untreated sewage into environmentally sensitive areas such as protected wetlands, lakes, and rivers. It could also result in releases of untreated sewage that could infiltrate into the groundwater system. The depth to the source water aquifer in the DWSMAs is over 100 feet. The aquifer vulnerability in the DWSMAs is classified as Moderate, which indicates that it takes years to decades for water to reach the source water aquifer from the surface. Based on the available information, leaks from a the sewer system would likely pose no significant risk to the City's wells. Chapter 58 Article III Division 4 of the Ramsey City Code addresses sanitary sewer use and service. The City has an ongoing maintenance program to insure the integrity and proper operation of the sanitary sewer system. Additional measures in this Plan to address the sanitary sewers are considered to be unnecessary.

C.1.3.2.2 Storm Sewers

The City Code requires a stormwater management plan for all new developments. The City's storm sewer lines are shown on Figure C-15.

A municipal storm sewer and surface water drainage system plays a significant role in the management of storm water and can be an important part of management strategies developed for a wellhead protection plan. An improperly designed or maintained storm sewer and surface water drainage system may increase the chance for the spread of a contaminant into environmentally sensitive areas such as protected wetlands, lakes, and rivers or allow infiltration of contaminants into the groundwater system. A surface

water management program is in place in Ramsey (Ramsey, 2018b). The storm sewer system is currently in good condition and the City has a maintenance program in place to keep the system operating properly. The City will rely on their existing surface water management program to address issues related to surface water. Therefore, additional measures to address surface water in this Plan are considered to be unnecessary.

C1.4 Water Quantity Data Elements

Surface water and groundwater quantity are discussed in this section.

C1.4.1 Surface Water Quantity

As discussed above, the surface water features in the DWSMAs include Jeglens Marsh and some small ponds. The City Code requires a drainage plan for new developments if the direction, quantity or quality of drainage of a site will be altered during development. Any changes must conform to the City's comprehensive surface water management plan (Ramsey, 2018b).

The Minnesota Permitting and Reporting System (MPARS) database indicates there are no surface water appropriations in the Ramsey DWSMAs.

The City is not aware of any current water-use conflicts that impact surface water quantity in the vicinity of the DWSMAs. Therefore, measures in this Plan to address surface water quantity issues are considered to be unnecessary.

C1.4.2 Groundwater Quantity

The Ramsey municipal water supply system currently includes seven primary water supply wells and one seasonal-use well. Under MDNR Appropriation Permit No. 1985-6005, the City of Ramsey currently has a permitted annual groundwater appropriation of 850 million gallons per year (MGY). The permitted instantaneous total pumping rate for the Ramsey system is 8,200 gallons per minute (gpm) or approximately 11.8 million gallons per day (MGD).

The projected water use (i.e., pumpage) used to delineate the Ramsey WHPAs and DWSMAs was 949,205,000 gallons per year (MDH, 2018).

Ramsey was incorporated as a city in 1974. Between 1970 and 2000, the population of Ramsey increased from 2,536 to 18,510. The 2010 census counted a total of 23,668 people in Ramsey (an increase of approximately 28% over the 2000 population). In 2017 the City's estimated population was 25,581. It should be noted that the City's water supply system does not serve the entire population of Ramsey. In 2017the estimated population served by the municipal water supply system was 13,720. The City's draft Water Supply Plan (Ramsey, 2018a) projects that the City's water supply system will serve 13,921 people in 2020 and 22,987 in 2030. The draft Water Supply Plan projects the City's total population in 2030 will be 33,350.

As shown in Table C-1 , the Ramsey municipal water supply wells were constructed between 1984 and 2007.

Water demand for 2007 through 2017 is shown in the City's draft 2018 Water Supply Plan (Ramsey, 2018a). During that period the City's water annual demand varied between 588 and 704 MGY while the population served increased from 9,702 in 2007 to 13,720 in 2017. The City's total per capita demand between 2007 and 2017 ranged between 122 and 199 gallons per capita per day. The residential per capita demand for the same period ranged from 72 to 120 gallons per capita per day. The City's average day water demand in 2017 was 1.92 MGD and the projected 2030 average day demand is 3.01 MGD (approximately 2,090 gpm) with a projected population served of 22,987.

As discussed above, in addition to the City of Ramsey municipal water supply wells 31 other high capacity wells within one mile of the DWSMAs were identified. Information on these 31 high capacity wells is presented in Table C-9. The City is not aware of any current adverse groundwater conflicts or interferences related to the existing Ramsey municipal wells.

Construction of other high capacity wells in or near the DWSMAs may influence groundwater flow in the source water aquifer and the groundwater quantity available to the municipal system. Such wells could potentially affect the boundaries of the DWSMAs, which would require the City to update the Wellhead Protection Plan. In addition, such wells could potentially reduce the static levels in the source water aquifer. Issues regarding changes in appropriations resulting from additions or deletions to the current list of water appropriations in and near the DWSMAs will be addressed in the management portion of this Plan.

Persistent drought conditions or other water emergencies may also prove to be a threat to the quantity of groundwater available to the municipal system. Under Section 58-118 of the City Code the City can put in place restrictions on water use if it determines that a shortage of water threatens the city. These restrictions may include limits on lawn and garden sprinkling, irrigation, car washing, air conditioning and other uses. In addition, the City has odd-even lawn sprinkling restrictions between 10:00 a.m. and 8:00 p.m. between Memorial Day and Labor Day. Per the city code, the following are exempted from the sprinkling ban: watering of newly sodded lawns for a period of two weeks, hand watering overseeded or spot repaired lawn areas, car washing, filling of children's swimming pools, and children playing in hose operated sprinklers or water toys. The City also requires rain sensors and back flow devices for irrigation systems for townhomes, multifamily residential properties, and commercial properties connected to the municipal water system.

Ramsey' current water supply meets the demand of its consumers. The City is confident that the municipal water supply system will continue to have the capability of meeting future demand.

C1.5 Water Quality Data Elements

Surface water and groundwater quality are discussed in this section.

C1.5.1 Surface Water Quality

The City Code the City's surface water management plan (Ramsey, 2018b) address management of surface water. The goal of the City's surface water management is to protect and improve the quality of existing surface water resources in and near the City and provide guidelines for current and future urban development.

C1.5.2 Groundwater Quality

The MDH has an ongoing program to monitor the quality of municipal water supplies. City of Ramsey municipal wells are sampled at least once every year for selected metals, other inorganic compounds, organic compounds, and bacteria as part of this program. To date, reported concentrations of all monitoring parameters meet the regulatory levels specified by the U.S. EPA as part of the Safe Drinking Water Act or by the State of Minnesota. These results are presented in the Ramsey Consumer Confidence Report that is prepared annually. A copy of the 2018 annual report is presented in Appendix D. The 2018 report and reports from other years can also be accessed on the City's website at http://www.ci.ramsey.mn.us/Archive.aspx?AMID=38 Reports from previous years are also available from the City upon request.

The City currently adds chlorine and fluoride to the water supply at the pumphouses associated with the wells (Ramsey, 2018a). In addition, ortho and polyphosphates are also added to the pumped water at the pumphouses to inhibit corrosion and sequester iron and manganese. The City currently has four pumphouses in which water is treated prior to entering the distribution system. Water from the City's wells is routed to the pumphouses for treatment as follows:

- Pumphouse 1 – water from Wells 1 and 2
- Pumphouse 2 – water from Wells 3 and 4
- Pumphouse 3 – water from Wells 5 and 6
- Pumphouse 4 – water from Wells 7 and 8

The City currently has the capacity to treat up to 11 MGD (Ramsey, 2018a).

The MDH has prepared a study for Anoka County which evaluates the relative susceptibility of the water table aquifer to contamination from nitrate (MDH, 2012). The susceptibility of most of the area encompassed by the East DWSMA has been classified as low or moderate, although there are some small areas of high susceptibility within the DWSMA. In the West DWSMA the susceptibility classifications range from low to high. The combined area of low and moderate susceptibility is similar to the area of high susceptibility in the West DWSMA. The aquifer vulnerability classification for the Tunnel City-Wonewoc aquifer (the source water aquifer) suggests that it is unlikely that nitrate in the water table aquifer would adversely impact the source water aquifer in the DWSMAs.

It's important to consider groundwater quality when determining management strategies for the land uses within the DWSMAs. Since the City currently enjoys good water quality, the City has developed management strategies in this WHPP amendment aimed at maintaining the groundwater quality in the source water aquifers.

C1.6 Assessment of Data Elements

C1.6.1 Use of the Municipal Wells

Ramsey currently has eight municipal water supply wells in the municipal water supply and distribution system for Public Water Supply 1020035. Locations of the wells are shown on Figure C-1and construction details for the Ramsey municipal wells are summarized in Table C-1 . Copies of the MDH well records for these wells are presented in Appendix A.

The 2010 census indicated that Ramsey had a population of 23,668. In 2017 the population of Ramsey was estimated to be 25,581 and it was estimate that the water system served 13,270 people. The City's draft Water Supply Plan (Ramsey, 2018a) projects that the City's water supply system will serve 13,921 people in 2020 and 22,987 in 2030. The draft Water Supply Plan projects the City's total population in 2030 will be 33,350.

As discussed above, the City's average day water demand in 2017 was 1.92 MGD and the projected 2030 average day demand is 3.01 MGD (approximately 2,090 gpm) with a projected population served of 22,987.

For the period 2010–2017, daily demand on the Ramsey water system averaged about 1.7 MGD. Ramsey currently has a permitted annual groundwater appropriation of 850 MGY. The permitted instantaneous total pumping rate for the Ramsey system is 8,200 gpm.

Ramsey currently has three elevated water storage facilities. These facilities have a combined storage capacity of 4.0 MG. Construction of additional water storage facilities is not currently planned (e.g., Ramsey, 2018a).

C1.6.2 Wellhead Protection Area Criteria

Delineation of the WHPAs for the Ramsey wells was completed in 2018. Information/criteria used to perform the WHPA/DWSMA delineations are discussed in the Part 1 WHPP amendment prepared by the MDH (2018) and are summarized below.

C1.6.2.1 Time of Travel

A 10-year groundwater time of travel capture zone for each of the City's wells was delineated but it was determined that capture zones for a 12-year time of travel would still be contained within the boundaries of the DWSMAs previously delineated for the Ramsey wells (MDH, 2018). The individual capture zones were combined into composite capture zones that were used to delineate the DWSMAs. The one-year groundwater time of travel capture zones for the City's wells was determined in a similar manner.

C1.6.2.2 Aquifer Transmissivity

Transmissivity of the Tunnel City-Wonewoc aquifer used to delineate the WHPAs for the City's wells was unchanged from that used in the previous (2007) delineations (MDH, 2018).

C1.6.2.3 Daily Volume of Water Pumped

Daily volume of water pumped from each of Ramsey' municipal wells used in the groundwater flow model was determined by using the highest recorded annual volume for each well (see MDH, 2018).

C1.6.2.4 Flow Boundaries

The primary flow boundaries for the Tunnel City-Wonewoc aquifer in the Ramsey area are the Mississippi River and the Rum River. In addition to the rivers, operating high capacity wells can influence groundwater flow directions on a local scale. The rivers, along with active high capacity wells, were included in the groundwater model used for the WHPA delineation.

C1.6.2.5 Groundwater Flow Field

The groundwater flow model shows groundwater flow toward the regional discharge zone at the Mississippi River as well as some flow towards the Rum River.

C1.6.3 Quantity and Quality of Water Supplying the Public Water Supply Wells

As discussed above, the Ramsey municipal wells are open to a bedrock aquifer consisting of the Tunnel City Group and the Wonewoc Sandstone. Construction details for the Ramsey municipal wells are summarized in Table C-1 .

Based on the available information, there are no known groundwater quantity issues that will have any significant impact on the management of the DWSMAs associated with the Ramsey wells. In the future, new high capacity wells completed in the source water aquifer in the vicinity of Ramsey could, potentially, affect the quantity of groundwater available if the volume of water pumped from the aquifer would exceed the rate at which the aquifer recharged. It is also possible that new high capacity wells in the source water aquifer within the DWSMAs may have some effect on pumping from the City's wells, if the new wells were to be installed close to the City's wells. Currently, there are no known significant conflicts or interferences related to the municipal wells in the DWSMAs.

It is possible that the DWSMA could expand in the future if Ramsey installs additional wells in the source water aquifer, particularly if new wells would be in a new well field. Any new wells constructed within the 10-year life time of this Plan will be incorporated, as directed by the MDH, into the groundwater model and, if projected pumping from the new wells affects the boundaries of the DWSMAs, Plan amendments will be prepared with the help of the Wellhead Protection Consultant.

As discussed above, the City participates in the MDH's ongoing program to monitor the quality of municipal water supplies. To date, reported concentrations of all monitoring parameters meet the regulatory levels specified by the U.S. EPA as part of the Safe Drinking Water. Results of these analyses are available upon request from MDH or the City.

C1.6.4 Land and Groundwater Uses in the DWSMA

Aquifer vulnerability within the DWSMAs is classified as Moderate. Based on the aquifer vulnerability classification, the potential for land uses within the DWSMAs to negatively impact the source water

aquifer is relatively low, but not nonexistent. Surface releases of contaminants within the DWSMAs, particularly if the releases were to be large and not cleaned up in a timely manner, could pose some risk to the source water aquifer. In addition, unmaintained, damaged, poorly-constructed, unused, or incorrectly abandoned wells could provide a direct route for contaminants to enter the source water aquifer. A spill very close to such a well would pose more of a risk to the source water aquifer than a spill in one of the DWSMAs far from such a well.

As discussed by MDH (2018), the DWSMAs were delineated to encompass the zones in which groundwater travel time to the Ramsey municipal wells is ten years or less. The DWSMAs are defined by geographically identifiable features. The East DWSMA extends beyond the Ramsey city limits into a portion of the city of Anoka.

Potential contaminant sources within the DWSMA identified through the PCSI include wells, storage tank sites (including LUST sites), potential Class V well locations, chemical storage locations, spill locations, and sites brownfields sites potentially associated with contaminants that may not fit into one of the other categories. In addition, railroad and highway corridors are present within the DWSMAs. These corridors are a potential location for contaminant spills. These potential contaminant sources will be considered when developing the management strategies for the Ramsey DWSMAs.

C2.0 References

City of Ramsey (Ramsey), 2018a. Draft City of Ramsey Local Water Supply Plan – Third Generation for 2018-2028, draft submitted to MDNR November 29, 2018.

City of Ramsey (Ramsey), 2018b. Draft Surface Water Management Plan, project 14-31, revised August 23, 2018.

Meyer, G.N., 2011. Surficial Geology, Plate 3 of 6, *in* Geologic Atlas of Anoka County – Part A, Minnesota: D.R. Setterholm (ed.), Minnesota Geological Survey County Atlas Series, Atlas C-27, University of Minnesota, St. Paul, available online at https://conservancy.umn.edu/handle/11299/116119.

Minnesota Department of Health (MDH), 2012. Nitrate-Nitrogen Probability Ranking Map for the Water Table Aquifer – Anoka County, Minnesota, Environmental Health Division – Source Water Protection Unit, October 2012.

Minnesota Department of Health (MDH), 2018. Amendment to the Wellhead Protection Plan – Part 1: Delineation of the Wellhead Protection Area (WHPA), Drinking Water Supply Management Area (DWSMA) and Assessments of Well and DWSMA Vulnerability, prepared for the City of Ramsey, February 2018.

Minnesota Department of Health (MDH), 2019. Scoping 2 Decision Notice and Meeting Summary – City of Ramsey – PWSID 1020035, Letter from John Freitag of the MDH to Bruce Westby of the City of Ramsey, April 4, 2019.

Mossler, J.H., 2011. Bedrock Geology, Plate 2 of 6, *in* Geologic Atlas of Anoka County – Part A, Minnesota: D.R. Setterholm (ed.), Minnesota Geological Survey County Atlas Series, Atlas C-27, University of Minnesota, St. Paul, available online at https://conservancy.umn.edu/handle/11299/116119.

Tables

Table C-1

Ramsey Municipal Well Construction Summary
City of Ramsey Wellhead Protection Plan Amendment

Local Well ID	Unique Number	Use/ Status[1]	Casing Diameter (in.)	Casing Depth (ft.)	Well Depth (ft.)	Year Constructed	Aquifer	Well Vulnerability
1	161441	P	14	243	323	1984	CTCW	Vulnerable
2	416183	S	14	240	320	1987	CTCG	Vulnerable
3	580303	P	30 x 24	222	345	1997	CTCW	Vulnerable
4	580313	P	30 x 24	191	321	1998	CTCW	Vulnerable
5	593672	P	30 x 24	215	316	2000	CTCW	Vulnerable
6	706840	P	30 x 24	282	390	2005	CTCW	Not Vulnerable
7	743832	P	30 x 24	216	332	2007	CTCW	Not Vulnerable
8	743833	P	30 x 24	245	354	2007	CTCW	Vulnerable

[1] P = Primary
S = Seasonal

Aquifer Codes:
CTCG = Tunnel City Group
CTCW = Tunnel City Group-Wonewoc Sandstone

Table C-2

Potential Contaminant Source Inventory Data Sources
City of Ramsey Wellhead Protection Plan Amendment

Potential Contaminant Source Type	Data Source(s)
Chemical Storage Tank Locations	MnDPS
Potential Class V Well Locations	MPCA WIMN Database; MPCA Agency Interests Database; U.S. EPA
Potential Contaminant Site Locations	MPCA WIMN Database; MPCA Agency Interests Database
LUST Locations	MPCA WIMN Database; MPCA Agency Interests Database
Storage Tanks	MPCA WIMN Database; MPCA Agency Interests Database
Spill Locations	MDA Small Spill Investigations; MPCA Remediation Sites Database
Wells	MGS CWI Database; MDNR MPARS Database; MDH Sealed Wells Database
Other Data Type	**Data Source(s)**
Current Land Use	Met Council 2016 Generalized Land Use
Historical Land Use	Met Council pre-1984 Land Use
Planned Land Use	City of Ramsey 2040 Planned Land Use
Bedrock Geology	MGS – Anoka County Geologic Atlas
Flood Zones	FEMA Digital Flood Insurance Rate Map Database
Roads and Railroads	MnDOT Office of Transportation Database
Pipelines	MGIO & MnOPS (1996)
Storm and Sanitary Sewer Networks	City of Ramsey
Zoning	City of Ramsey

Acronyms

CWI – County Well Index
FEMA – Federal Emergency Management Admin.
MnDPS – Minnesota Dept. of Public Safety
MGS – Minnesota Geological Survey
Met Council – Metropolitan Council
MGIO – Minnesota Geospatial Information Office
MDH – Minnesota Dept. of Health
MnOPS – Minnesota Office of Pipeline Safety
MnDOT – Minnesota Dept. of Transportation
MPARS – Minnesota Permitting and Reporting System
MPCA – Minnesota Pollution Control Agency
MDA – Minnesota Dept. of Agriculture
WIMN – What's In My Neighborhood
U.S. EPA – United States Environmental Protection Agency
MDNR – Minnesota Dept. of Natural Resources

Table C-3

PCSI Results - Well Locations in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

PCSI ID	PID No.	Unique No.	Status	Use	Well Name	Well Location	City	Total Depth (Feet)	Date Completed	Aquifer	PCS Code	Location Verified
1	253225440012	0000161441	Active	Community Supply (Municipal)	Ramsey 1	Not Available	Ramsey	323	11/09/1984	CTCG	WEL	Yes
2	363225120010	0000416183	Active	Community Supply (Municipal)	Ramsey 2	15153 Nowthen Bl NW	Ramsey	320	03/23/1987	CTCG	WEL	Yes
3	283225110011	0000580303	Active	Community Supply (Municipal)	Ramsey 3	7301 Industry Av NW	Ramsey	345	02/25/1997	CTCW	WEL	Yes
4	283225120011	0000580313	Active	Community Supply (Municipal)	Ramsey 4	7601 Industry Av NW	Ramsey	321	04/29/1998	CTCW	WEL	Yes
5	283225130005	0000593672	Active	Community Supply (Municipal)	Ramsey 5	15153 Ramsey Bl NW	Ramsey	316	10/10/2000	CTCW	WEL	Yes
6	283225230018	0000706840	Active	Community Supply (Municipal)	Ramsey 6	7849 Civic Center Dr	Ramsey	390	08/10/2005	CTCW	WEL	Yes
7	203225440002	0000743832	Active	Community Supply (Municipal)	Ramsey 7	7550 Sunwood Dr	Ramsey	332	05/20/2007	CTCW	WEL	Yes
8	283225210094	0000743833	Active	Community Supply (Municipal)	Ramsey 8	7550 Sunwood Dr	Ramsey	354	05/20/2007	CTCW	WEL	Yes
9	213225440020	0000412607	Active	Domestic	Amundsen, Jerry	7251 149th La NW	Ramsey	72	03/07/1985	QBAA	WEL	Yes
10	293225410016	0000450148	Active	Domestic	Anderlie, Glen	8150 144th Av NW	Ramsey	221	07/28/1988	CTCG	WEL	Yes
11	213225430006	0000155278	Active	Domestic	Anderson, Kenneth	15049 Uranimite St NW	Ramsey	233	12/05/1978	CTCG	WEL	Yes
12	253225310008	0000624756	Active	Elevator	Anoka County Hra	14351 Disprosium St NW	Ramsey	32	02/01/1999	QFUB	WEL	Yes
13	283225420024	0000782838	Active	Elevator	Anoka County Regional Railroad Authority	7600 Veterans Dr	Ramsey	0	06/29/2012	Not Available	WEL	Approximate
14	283225420024	0000782839	Active	Elevator	Anoka County Regional Railroad Authority	7600 Veterans Dr	Ramsey	29	06/10/2012	Not Available	WEL	Approximate
15	273225230004	0000587155	Active	Elevator	Anoka Elec. Coop.	14601 Ramsey Blvd	Ramsey	16	09/12/1996	QFUB	WEL	Yes
16	283225430001	0000596950	Active	Industrial	Anoka Ramsey Farm & Gar.	7435 Hwy 10	Ramsey	168	05/05/1997	QBAA	WEL	Yes
17	213225340001	0000415911	Active	Domestic	Austin, Glen	14905 Willemite St NW	Ramsey	200	11/12/1985	CTCG	WEL	Yes
18	213225430025	0000193785	Active	Domestic	Baker, Michael	7560 149th La NW	Ramsey	122	04/29/1984	QBAA	WEL	Yes
19	203225420033	0000243856	Active	Domestic	Barnett	15211 Iguana St NW	Ramsey	213	Not Available	CSLT	WEL	Yes
20	203225420031	0000242759	Active	Not Available	Barnett	15141 Iguana St NW	Ramsey	136	1974	Not Available	WEL	Yes
21	203225420032	0000242754	Unknown	Not Available	Barnett	15151 Iguana St NW	Ramsey	67	Not Available	Not Available	WEL	Yes
22	203225420030	0000242744	Active	Not Available	Barnett	15241 Jackel St NW	Ramsey	0	09/08/1978	Not Available	WEL	Yes
23	203225420005	0000242765	Active	Not Available	Barnett Builders	15130 Kangaroo St NW	Ramsey	180	09/02/1976	CTCG	WEL	Yes
24	203225420025	0000242644	Active	Not Available	Barnett Const. Co	8221 151st La NW	Ramsey	120	08/26/1985	Not Available	WEL	Yes
25	203225420012	0000242747	Active	Not Available	Barnett Const. Co.	15230 Jackel St NW	Ramsey	197	05/19/1975	CTCG	WEL	Yes
26	203225410011	0000242649	Active	Not Available	Barnett Const. Co.	8111 151st La NW	Ramsey	205	08/11/1976	CTCG	WEL	Yes
27	203225420022	0000242748	Active	Not Available	Barnnett	15230 Iguana	Ramsey	161	Not Available	CTCG	WEL	Yes
28	213225330011	0000673898	Active	Domestic	Beach, Jerry	7830 149th La NW	Ramsey	141	05/02/2002	CTCG	WEL	Yes
29	213225430022	0000458944	Active	Domestic	Berglund, Robert	7431 149th La NW	Ramsey	163	03/05/1990	QBAA	WEL	Yes
30	213225320022	0000471748	Active	Domestic	Bloodgood, Richard	7850 151st La NW	Ramsey	180	12/18/1990	CTCG	WEL	Yes
31	213225440004	0000144002	Active	Domestic	Boutain, Clarence	7351 150th La NW	Ramsey	141	09/07/1976	QBAA	WEL	Yes
32	203225420001	0000815114	Active	Domestic	Brock, Jannie	15240 Kangaroo St NW	Ramsey	73	04/24/2017	Not Available	WEL	Yes
33	213225330002	0000658016	Active	Domestic	Carlson, Cindy M.	7961 150th La NW	Ramsey	147	01/13/2001	QBAA	WEL	Yes
34	213225430030	0000178257	Active	Domestic	Carlson, David	7481 149th Av NW	Ramsey	172	12/23/1980	QBAA	WEL	Yes
35	213225310002	0000624992	Active	Domestic	Cary, Fred & Pamela	15140 Yolite St NW	Ramsey	121	10/11/1999	QBAA	WEL	Yes
36	223225330013	0000720891	Active	Domestic	Cazett, Jim	15052 Limonite St NW	Ramsey	105	12/14/2004	QBAA	WEL	Yes
37	293225410018	0000497399	Active	Domestic	Cfrn	8112 144th Av NW	Ramsey	200	04/27/1992	CTCG	WEL	Yes
38	293225140012	0000626753	Active	Domestic	Chalics Trucking	8100 146th Av NW	Ramsey	109	01/17/2001	QBAA	WEL	Yes
39	223225330002	0000675316	Active	Domestic	Cheney, Bill	15040 Kamacite St NW	Ramsey	63	04/17/2002	QBAA	WEL	Yes
40	283225220057	0000759582	Active	Monitor Well	City Of Ramsey	Armstrong Bl	Ramsey	62	09/07/2008	QWTA	WEL	Uncertain
41	203225410017	0000423562	Active	Domestic	Clair, Jim	15060 Armstrong Bl	Ramsey	109	08/21/1986	QBAA	WEL	Yes
42	213225430008	0000155070	Active	Domestic	Cunningham	7431 150th La NW	Ramsey	167	06/27/1978	QBAA	WEL	Yes
43	203225410022	0000439029	Active	Domestic	Dahlvang, Brain	8601 152nd Av NW	Ramsey	203	11/07/1987	CTCG	WEL	Yes
44	213225440003	0000154152	Active	Domestic	Deemer, Ben	7350 151st Av NW	Ramsey	239	09/21/1978	CTCG	WEL	Yes
45	213225440002	0000143979	Active	Domestic	Deemer, Ben	7320 151st Av NW	Ramsey	107	10/26/1977	QBAA	WEL	Yes
46	213225340026	0000435603	Active	Domestic	Derung, Neil	7730 149th La NW	Ramsey	169	06/25/1987	CTCG	WEL	Yes
47	213225340005	0000126615	Active	Domestic	Dubois, Gene & Debra	15030 Willemite St NW	Ramsey	185	09/20/1976	CTCG	WEL	Yes
48	203225410008	0000159275	Active	Domestic	Duffney, Lavern	8101 152nd Av NW	Ramsey	158	02/19/1979	CTCG	WEL	Yes
49	213225330021	0000538282	Active	Domestic	Eberlein, Steve	7900 150th La NW	Ramsey	140	01/14/1994	QBAA	WEL	Yes
50	213225340008	1000020502	Active	Domestic	Ecoff, Steve	7601 150th La NW	Ramsey	185	1973	Not Available	WEL	Yes
51	213225340002	0000597482	Active	Domestic	Elhardt, Mark	7751 150th La NW	Ramsey	195	06/11/1997	CTCG	WEL	Yes
52	203225420019	0000242746	Active	Not Available	Elisabeth, Dart	15231 Kangaroo St NW	Ramsey	103	05/27/1975	Not Available	WEL	Yes
53	213225320008	0000460012	Active	Domestic	Falls, Tom	7920 152nd La NW	Ramsey	170	12/19/1989	CSLT	WEL	Yes
54	213225320014	0000497488	Active	Domestic	Fiore, Ed	7861 151st La NW	Ramsey	221	10/24/1991	CSLT	WEL	Yes
55	203225420034	0000104706	Active	Domestic	Fred Nungesser	15221 Iguana St NW	Ramsey	128	02/27/1975	CTCG	WEL	Yes

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PCSI ID	PID No.	Unique No.	Status	Use	Well Name	Well Location	City	Total Depth (Feet)	Date Completed	Aquifer	PCS Code	Location Verified
56	213225330023	0000673234	Active	Domestic	Frederick, Frank	7841 150th La NW	Ramsey	147	11/01/2002	QBAA	WEL	Yes
57	213225330022	0000639083	Active	Domestic	Frey, Ray	7901 150th La NW	Ramsey	129	02/19/2003	QBAA	WEL	Yes
58	203225420003	0000242749	Active	Not Available	Fullon, Al	15210 Kangaroo NW	Ramsey	126	07/29/1974	CTCG	WEL	Yes
59	223225330027	0000126488	Active	Domestic	Fulton, Al	7010 150th Av NW	Ramsey	141	08/17/1976	CSLT	WEL	Yes
60	203225420021	0000242743	Active	Not Available	Fulton, Al	15250 Iguana NW	Ramsey	171	04/19/1974	CTCG	WEL	Yes
61	203225410015	0000242648	Active	Not Available	Fulton, Al	8130 151st La	Ramsey	171	11/21/1974	CTCG	WEL	Yes
62	213225320017	0000209280	Active	Domestic	Gilbertson, Dewitt	15140 Chameleon St NW	Ramsey	96	11/19/1973	QBAA	WEL	Yes
63	213225440006	0000133282	Active	Domestic	Graen, Richard	7321 150th La NW	Ramsey	204	08/16/1977	CTCG	WEL	Yes
64	283225430003	0000426793	Active	Commercial	Great Plains Gas Co.	7411 10 Hy W	Ramsey	52	12/29/1986	QWTA	WEL	Yes
65	203225410012	0000242761	Active	Domestic	Grecula, James	15131 Hedgehog St NW	Ramsey	0	1973	Not Available	WEL	Yes
66	293225140015	0000438998	Active	Public Supply/Non-Community	Hauan, Dave	14622 Ferret St NW	Ramsey	283	06/28/1988	CTCW	WEL	Yes
67	213225440018	0000242416	Active	Domestic	Hausier, Tim	15031 Peridot St NW	Ramsey	75	Not Available	QBAA	WEL	Yes
68	203225420032	0000626986	Active	Not Available	Havisto, Al	15151 Iguana St NW	Ramsey	197	05/24/1999	CTCG	WEL	Yes
69	213225430003	0000208754	Active	Domestic	Hebbert, Howard	15050 Uranimite St NW	Ramsey	100	10/26/1973	QBAA	WEL	Yes
70	283225310005	0000242784	Active	Unknown	Hedstrong, Roger	7665 10 Hy	Ramsey	150	09/16/1976	CTCG	WEL	Yes
71	213225430017	0000429104	Active	Domestic	Henrickson, Mike	7561 149th La NW	Ramsey	171	02/05/1987	QBAA	WEL	Yes
72	213225440015	0000145746	Active	Domestic	Herlitz, Ray	15000 Peridot St NW	Ramsey	210	03/29/1982	CSLT	WEL	Yes
73	293225140016	0000578982	Active	Domestic	Holiday Rv	8175 Riverdale Dr NW	Ramsey	127	09/10/1998	QWTA	WEL	Yes
74	213225430013	0000165560	Active	Domestic	Houman, Dave	7590 149th La NW	Ramsey	270	07/26/1979	CTCG	WEL	Yes
75	213225440017	0000182160	Active	Domestic	Hovind, Paul	7240 150th La NW	Ramsey	98	07/08/1983	QBAA	WEL	Yes
76	293225410017	0000453432	Active	Domestic	Jensen, Tim	8144 144th Av NW	Ramsey	196	09/26/1988	CTCG	WEL	Yes
77	203225410014	0000242646	Active	Not Available	Jenson, Leon	8150 151st La NW	Ramsey	123	07/03/1975	Not Available	WEL	Yes
78	283225320026	0000706442	Active	Domestic	John Weicht & Associates	7850 Riverdale Dr NW	Ramsey	179	02/16/2004	QBAA	WEL	Yes
79	213225320027	0000622076	Active	Domestic	Johnson, Harold F.	15280 Armstrong Bl NW	Ramsey	172	06/11/1999	QBAA	WEL	Approximate
80	283225120008	0000556694	Active	Domestic	Johnson, Jay	7446 149th Av NW	Ramsey	199	07/05/1995	CTCG	WEL	Yes
81	203225420026	0000242762	Active	Not Available	Johnson, Stephen	15131 Jackel St NW	Ramsey	0	06/27/1974	Not Available	WEL	Yes
82	203225420014	0000242756	Active	Not Available	Jung, Perry	15150 Jackel St NW	Ramsey	194	06/12/1975	CTCG	WEL	Yes
83	213225440007	0000146257	Active	Domestic	Kabanak, Ed	7220 151st Av NW	Ramsey	170	08/31/1978	CSLT	WEL	Yes
84	213225430007	0000154180	Active	Domestic	Karsikas, Philip	7500 151st Av NW	Ramsey	182	10/24/1978	QBAA	WEL	Yes
85	203225420018	0000242562	Active	Domestic	Kawecio, Walter	15211 Jackal St NW	Ramsey	180	06/04/1974	CTCG	WEL	Yes
86	213225320021	0000208755	Active	Domestic	Kelsey, Tim	7900 151st NW	Ramsey	81	10/10/1973	QBAA	WEL	Yes
87	213225430020	0000421788	Active	Domestic	Kempenich	7480 150th La NW	Ramsey	173	06/26/1986	CTCG	WEL	Yes
88	213225320001	0000624157	Active	Domestic	Kerns, Paula	7941 152nd La NW	Ramsey	109	02/15/1999	QBAA	WEL	Yes
89	203225420017	0000242755	Active	Not Available	Keroff, Lowell	15151 Kangaroo St NW	Ramsey	174	10/01/1975	CTCG	WEL	Yes
90	213225340003	0000170450	Active	Domestic	Khayatt, Carol	15060 Yolite St NW	Ramsey	216	10/24/1982	CTCG	WEL	Yes
91	213225440014	0000523995	Active	Domestic	Kissel, John & Mischelle	14980 Peridot St NW	Ramsey	200	06/23/1993	CTCG	WEL	Yes
92	213225430032	0000415912	Active	Domestic	Knutson, Herb	7551 149th Av NW	Ramsey	245	11/14/1985	CTCG	WEL	Yes
93	213225430023	0000181967	Active	Domestic	Kocisak, Peter	7440 150th La NW	Ramsey	110	09/08/1982	QBAA	WEL	Yes
94	213225440016	0000429126	Active	Domestic	Kreur, Gary	7230 150th La NW	Ramsey	210	03/11/1987	CTCG	WEL	Yes
95	213225440019	0000425939	Active	Domestic	Kruger	14981 Peridot St NW	Ramsey	240	01/13/1987	CTCG	WEL	Yes
96	213225340015	0000415858	Active	Domestic	Kruger, Richard	7640 150th La NW	Ramsey	158	07/09/1985	QBAA	WEL	Yes
97	213225440029	0000500459	Active	Domestic	Kukowskis	14950 Peridot St NW	Ramsey	215	08/02/1989	CTCG	WEL	Yes
98	203225420009	1000021132	Active	Domestic	Kvam, Lori	8240 151st La NW	Ramsey	0	1973	Not Available	WEL	Yes
99	203225410006	0000242753	Active	Not Available	Lamecker, Gary	15160 Hedgehog NW	Ramsey	210	1974	CTCG	WEL	Yes
100	283225320003	0000509238	Active	Public Supply/Non-Comm.-Transient	Landowski, Greg	7955 Riverdale rd	Ramsey	69	11/01/1989	QBAA	WEL	Yes
101	293225410019	0000463049	Active	Domestic	Limmer, Mike	8100 144th Av NW	Ramsey	190	06/28/1991	CTCG	WEL	Yes
102	293225410012	0000450358	Active	Domestic	Litchfield, Curt	8101 144th Av NW	Ramsey	93	05/18/1989	QBAA	WEL	Yes
103	213225320020	0000435324	Active	Domestic	Lloyd, Jeff	7920 151st La NW	Ramsey	66	01/28/1988	QWTA	WEL	Yes
104	203225430004	0000434320	Active	Domestic	Lokker, Donald	15049 Iguana St NW	Ramsey	200	05/28/1987	CTCG	WEL	Yes
105	293225410015	0000429129	Active	Domestic	Lowe, Steve	14311 Armstrong Bl NW	Ramsey	200	03/16/1987	CTCG	WEL	Yes
106	213225340012	0000242430	Active	Domestic	Luck, Don & Julie	15061 Willemite St NW	Ramsey	105	1972	Not Available	WEL	Yes
107	213225330019	0000451490	Active	Domestic	Lund, Gary	14920 Bison St NW	Ramsey	62	10/14/1988	QBAA	WEL	Yes
108	283225320016	0000498158	Active	Domestic	Lund, Larry	14322 Alpaca St NW	Ramsey	119	06/15/1992	QBAA	WEL	Yes
109	283225420002	0000626767	Active	Public Supply/Non-Comm.-Transient	M&G Leasing Inc.	7575 10 Uh	Ramsey	153	05/04/2001	QBAA	WEL	Yes

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PCSI ID	PID No.	Unique No.	Status	Use	Well Name	Well Location	City	Total Depth (Feet)	Date Completed	Aquifer	PCS Code	Location Verified
110	213225430027	0000178240	Active	Domestic	Maciaszek, Chet	7460 149th La NW	Ramsey	170	06/10/1981	QBAA	WEL	Yes
111	283225340002	0000231875	Unknown	Irrigation	Martin, James	Not Available	Ramsey	55	04/11/1977	QWTA	WEL	Uncertain
112	223225330029	0000242427	Active	Domestic	Mazzitello, Lisa	7030 149th La NW	Ramsey	161	11/08/1974	CTCG	WEL	Yes
113	213225430016	0000426450	Active	Domestic	Menkveld, Jack	15001 Uranimite St NW	Ramsey	260	01/27/1987	CTCG	WEL	Yes
114	283225120010	0000571659	Active	Domestic	Mertens, Fred	7404 149th Av NW	Ramsey	205	09/16/1995	CTCG	WEL	Yes
115	213225440027	0000451486	Active	Domestic	Miller, R.A.	7201 149th Av NW	Ramsey	204	10/11/1988	CTCG	WEL	Yes
116	283225320011	0000635309	Active	Public Supply/Non-Comm.-Transient	Monarch Homes 1	7820 Riverdale rd NW	Ramsey	165	01/12/2000	QBAA	WEL	Yes
117	213225330027	0000485819	Active	Domestic	Moorhouse, Lawrence/Hud	15041 Bison St NW	Ramsey	58	06/11/1992	QWTA	WEL	Yes
118	213225330014	0000686571	Active	Domestic	Newberger, Michael	14940 Chameleon St NW	Ramsey	140	11/25/2002	CTCG	WEL	Yes
119	253225340026	0000649059	Active	Domestic	Nguyen, Kieu-Loan-Kheo	14128 Barium St NW	Ramsey	17	06/06/2000	QUUU	WEL	Yes
120	213225330013	0000124066	Active	Domestic	Nienaber, Dwayne W.	14920 Chameleon St NW	Ramsey	117	06/30/1976	CTCG	WEL	Yes
121	213225340022	0000242781	Active	Domestic	Niven, Richard	15010 Willemite St NW	Ramsey	158	07/22/1974	CTCG	WEL	Yes
122	203225420008	0000242637	Active	Not Available	Nord, Donald	8310 151st La NW	Ramsey	156	09/30/1974	CTCG	WEL	Yes
123	213225440030	0000450357	Active	Domestic	Norvick, Steve	14930 Peridot St NW	Ramsey	230	05/17/1989	CTCG	WEL	Yes
124	213225440008	0000162015	Active	Domestic	Not Available	7311 150th La NW	Ramsey	158	03/19/1979	CTCG	WEL	Approximate
125	213225430015	0000170428	Active	Domestic	Not Available	14960 Uranimite St NW	Ramsey	157	04/27/1982	CTCG	WEL	Yes
126	213225440023	0000411512	Active	Domestic	Not Available	7260 149th La NW	Ramsey	82	06/13/1985	QBAA	WEL	Yes
127	213225440011	0000193469	Active	Domestic	Not Available	7380 150th La NW	Ramsey	230	05/10/1983	CTCG	WEL	Yes
128	293225410013	0000538121	Active	Domestic	Not Available	14401 Armstrong Bl NW	Ramsey	67	08/09/1994	QBAA	WEL	Yes
129	283225320025	0000513682	Active	Domestic	Not Available	7815 Riverdale Dr NW	Ramsey	116	08/03/1992	QBAA	WEL	Yes
130	213225440001	0000143466	Active	Domestic	Not Available	7260 151st Av NW	Ramsey	160	05/23/1977	CTCG	WEL	Yes
131	213225330024	0000126783	Active	Domestic	Not Available	7821 150th NW	Ramsey	200	08/12/1976	CTCG	WEL	Yes
132	213225320010	0000143467	Active	Domestic	Not Available	7840 152nd La NW	Ramsey	185	05/24/1977	CTCG	WEL	Yes
133	Not Available	0000133306	Active	Domestic	Not Available	Not Available	Ramsey	249	09/23/1977	CTCG	WEL	Uncertain
134	283225110008	0000610607	Active	Domestic	Not Available	7346 149th Av NW	Ramsey	168	03/12/1998	QBAA	WEL	Yes
135	213225430009	0000146256	Active	Domestic	Not Available	7421 150th La NW	Ramsey	162	03/29/1978	QBAA	WEL	Yes
136	213225430014	0000429144	Active	Domestic	Not Available	15000 Uranimite St NW	Ramsey	132	04/16/1987	QBAA	WEL	Yes
137	213225440008	0000152520	Active	Domestic	Not Available	7301 150th La NW	Ramsey	185	07/26/1978	CTCG	WEL	Yes
138	223225330007	0000208760	Active	Domestic	Not Available	7101 149th La NW	Ramsey	151	Not Available	CSLT	WEL	Yes
139	213225340007	0000143443	Active	Domestic	Not Available	15060 Willemite St NW	Ramsey	245	06/30/1977	CTCG	WEL	Yes
140	223225330010	0000208758	Active	Domestic	Not Available	15010 Kamacite St NW	Ramsey	135	Not Available	CTCG	WEL	Yes
141	223225330009	0000208757	Active	Domestic	Not Available	15030 Kamacite St NW	Ramsey	121	Not Available	CTCG	WEL	Yes
142	203225420020	0000478548	Active	Domestic	Not Available	8330 153rd Av NW	Ramsey	255	05/08/1977	CTCW	WEL	Yes
143	213225330007	0000126767	Active	Domestic	Not Available	7950 149th NW	Ramsey	155	09/03/1976	CTCG	WEL	Yes
144	213225430019	0000182159	Active	Domestic	Not Available	7500 150th La NW	Ramsey	158	07/07/1983	QBAA	WEL	Yes
145	283225120007	0000574223	Active	Domestic	Not Available	7454 149th Av NW	Ramsey	132	10/09/1995	QBAA	WEL	Yes
146	293225410010	0000533722	Active	Domestic	Not Available	8133 144th Av NW	Ramsey	210	09/14/1993	CTCG	WEL	Yes
147	283225120005	0000574222	Active	Domestic	Not Available	7528 149th Av NW	Ramsey	132	10/17/1995	QBAA	WEL	Yes
148	223225330008	0000208761	Active	Domestic	Not Available	7100 149th La NW	Ramsey	145	Not Available	CSLT	WEL	Yes
149	293225410014	0000439987	Active	Domestic	Not Available	14331 Armstrong Bl NW	Ramsey	215	04/25/1988	CTCG	WEL	Yes
150	213225430031	0000170422	Active	Domestic	Not Available	7521 149th Av NW	Ramsey	122	09/19/1981	QBAA	WEL	Yes
151	213225440024	0000429257	Active	Domestic	Not Available	7290 149th La NW	Ramsey	215	08/27/1987	CTCG	WEL	Yes
152	213225320009	0000156192	Active	Domestic	Not Available	7900 152nd La NW	Ramsey	185	12/28/1978	CTCG	WEL	Yes
153	213225340018	0000122790	Active	Domestic	Not Available	14921 Zeolite St NW	Ramsey	170	05/25/1976	CTCG	WEL	Yes
154	283225120004	0000612330	Active	Domestic	Not Available	7560 149th Av NW	Ramsey	134	08/19/1998	QBAA	WEL	Yes
155	213225330010	0000126647	Active	Domestic	Not Available	7850 149th NW	Ramsey	170	12/03/1976	CTCG	WEL	Yes
156	283225110007	0000619214	Active	Domestic	Not Available	7362 149th Av NW	Ramsey	209	08/28/1998	CTCG	WEL	Yes
157	363225140045	0000133317	Active	Domestic	Not Available	331 Coolidge St	Anoka	184	11/11/1977	CTCG	WEL	Yes
158	213225430011	0000442102	Active	Domestic	Not Available	7401 150th La NW	Ramsey	107	07/07/1988	QBAA	WEL	Yes
159	213225430005	0000143380	Active	Domestic	Not Available	15040 Uranimite St NW	Ramsey	120	03/09/1978	QBAA	WEL	Yes
160	213225330026	0000126774	Active	Domestic	Not Available	15001 Bison St NW	Ramsey	185	08/26/1976	CTCG	WEL	Yes
161	223225330032	0000505667	Active	Domestic	Not Available	14936 Limonite St NW	Ramsey	150	01/23/1990	MTPL	WEL	Yes
162	293225410009	0000570126	Active	Domestic	Not Available	8149 144th Av NW	Ramsey	108	09/29/1995	QBAA	WEL	Yes
163	283225120006	0000487588	Active	Domestic	Not Available	7520 149th Av NW	Ramsey	175	07/18/1991	QBAA	WEL	Yes

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PCSI ID	PID No.	Unique No.	Status	Use	Well Name	Well Location	City	Total Depth (Feet)	Date Completed	Aquifer	PCS Code	Location Verified
164	293225410020	0000423121	Active	Domestic	Not Available	14312 Armstrong Bl NW	Ramsey	190	08/07/1986	CTCG	WEL	Yes
165	283225120009	0000567229	Active	Domestic	Not Available	7428 149th Av NW	Ramsey	192	07/11/1995	CTCG	WEL	Yes
166	213225340006	0000790658	Active	Domestic	Odenbrett, Preston & Vaugh	15040 Willemite St	Ramsey	199	06/11/2012	CTCG	WEL	Yes
167	363225130009	0000149780	Active	Domestic	Olson, Gerald	381 Coolidge St	Anoka	209	05/31/1978	CTCG	WEL	Yes
168	213225330025	0000487842	Active	Domestic	Pahl, Martin	14921 Bison St NW	Ramsey	141	09/10/1991	CSLT	WEL	Yes
169	203225430003	0000197567	Active	Domestic	Pastorek, Larry	15076 Iguana St NW	Ramsey	185	11/17/1983	CSLT	WEL	Yes
170	213225440012	0000415887	Active	Domestic	Patzer	7350 150th La NW	Ramsey	243	10/02/1985	CTCG	WEL	Yes
171	273225230004	0000183685	Active	Domestic	Peltzer, Reinholdt	14650 Ramsey Bl NW	Ramsey	168	11/20/1981	CSLT	WEL	Approximate
172	223225330014	0000767802	Active	Domestic	Pelzer, Arnold	15035 Ramsey Bl NW	Ramsey	71	09/15/2008	QBAA	WEL	Yes
173	283225320023	0000705431	Active	Public Supply/Non-Comm.-Transient	Pleasureland Rv Center	7900 Riverdale Dr	Ramsey	160	01/05/2005	QBAA	WEL	Yes
174	213225330009	0000743422	Active	Domestic	Powers, Herb	7910 149th La NW	Ramsey	88	10/16/2006	QBAA	WEL	Yes
175	293225140008	0000431687	Active	Domestic	Powers, Mike	8050 147th St NW	Ramsey	117	11/05/1987	QBAA	WEL	Yes
176	283225330005	0000790638	Active	Domestic	Pregler, Andy	14290 Alpaca St NW	Ramsey	280	02/28/2013	CTCG	WEL	Yes
177	203225430002	0000432484	Active	Domestic	Quinn	15092 Iguana St NW	Ramsey	67	07/29/1987	QBAA	WEL	Yes
178	363225140046	0000144182	Active	Domestic	Quinn, Mike	321 Coolidge St NW	Anoka	218	02/01/1978	CSLT	WEL	Yes
179	223225330004	0000208759	Active	Domestic	R & B Const.	15021 Limonite St NW	Ramsey	121	11/16/1973	CSLT	WEL	Yes
180	223225330030	0000242776	Active	Domestic	R&B Const. #27	7000 149th La NW	Ramsey	120	05/23/1974	CSLT	WEL	Yes
181	363225130010	0000149709	Active	Domestic	Raaum, Roger	371 Coolidge St	Anoka	199	12/20/1978	CSLT	WEL	Yes
182	203225440002	0000611056	Active	Public Supply/Non-Comm.-Transient	Ramsey Fire Stat. 2	15050 Armstrong Bl NW	Ramsey	260	04/20/2000	CTCG	WEL	Yes
183	283225420024	0000773399	Active	Irrigation	Ramsey Ir	7550 Sunwood Dr	Ramsey	320	07/21/2010	CTCG	WEL	Yes
184	283225240002	0000563016	Active	Test Well	Ramsey Tw-4	7601 Industry Av NW	Ramsey	350	06/25/1997	CTCE	WEL	Approximate
185	283225220057	0000731127	Active	Monitor Well	Ramsey Tw-7	Industry Av NW	Ramsey	304	03/21/2006	CTCE	WEL	Uncertain
186	293225110008	0000429199	Active	Commercial	Ranelle, Dick	14700 Armstrong Bl NW	Ramsey	106	06/29/1987	QBAA	WEL	Yes
187	273225220065	0000743827	Active	Irrigation	Raymond Renner Properties, Llc	7065 148th La NW	Ramsey	192	08/21/2006	CSLT	WEL	Yes
188	223225330001	0000743171	Active	Domestic	Rosenberg, Cathy	15042 Limonite St NW	Ramsey	79	08/07/2008	QBAA	WEL	Yes
189	223225330030	0000208762	Active	Domestic	Rt B Const.	7000 149th La NW	Ramsey	150	Not Available	CSLT	WEL	Yes
190	203225420024	0000632763	Active	Domestic	Schagwerl, Tom	15150 Iguana St NW	Ramsey	172	06/21/1999	CTCG	WEL	Yes
191	223225330021	0000717246	Active	Domestic	Schmitz, Paul	14950 Kamacite St NW	Ramsey	118	10/29/2004	QBAA	WEL	Yes
192	203225420033	0000434311	Active	Domestic	Schroedl, Steve	15211 Iguana St NW	Ramsey	200	05/12/1987	CTCG	WEL	Yes
193	213225430021	0000197576	Active	Domestic	Schugowski, Ed	7471 149th La NW	Ramsey	260	07/16/1984	CTCG	WEL	Yes
194	203225420024	0000242757	Active	Not Available	Schwagel, Thomas And Cindy	15150 Iguana	Ramsey	65	Not Available	Not Available	WEL	Yes
195	213225320013	0000761474	Active	Domestic	Scott, Kyle	7841 151st La NW	Ramsey	92	10/09/2008	CSTL	WEL	Yes
196	213225340017	0000652503	Active	Domestic	Shefveland, Jim	7600 150th La NW	Ramsey	132	08/04/2000	QBAA	WEL	Yes
197	223225340021	0000126489	Active	Domestic	Sienko, Larry	6950 150th Av NW	Ramsey	158	12/01/1977	CTCG	WEL	Yes
198	203225410021	0000432526	Active	Domestic	Simon, James	8021 152nd Av NW	Ramsey	150	05/21/1987	CTCG	WEL	Yes
199	283225119901	0000122463	Active	Domestic	Sjerven, Stephen	14700 Ramsey Bl	Ramsey	160	01/22/1977	CSLT	WEL	Approximate
200	293225410004	0000406272	Active	Public Supply/Non-Comm.-Transient	Sleep Easy Mattess Co.	8000 10 Hy W	Ramsey	240	09/21/1984	CTCG	WEL	Yes
201	213225440013	0000506557	Active	Domestic	Smilth, Dan L.	7341 149th La NW	Ramsey	276	05/17/1999	CTCG	WEL	Yes
202	293225410011	0000549759	Active	Domestic	Smith, Ray	8121 144th Av NW	Ramsey	170	07/21/1994	CTCG	WEL	Yes
203	203225420013	0000611065	Active	Domestic	Snyder, Harlan & Eleanor	15210 Jackal St NW	Ramsey	200	06/19/2000	CTCG	WEL	Yes
204	213225320011	0000169042	Active	Domestic	Soucy, Dave	7820 152nd La NW	Ramsey	190	08/30/1979	CTCG	WEL	Yes
205	213225320005	0000169043	Active	Domestic	Soucy, Dave	Not Available	Ramsey	181	08/29/1979	CTCG	WEL	Uncertain
206	203225410023	0000158329	Active	Domestic	Stadden, John	8050 152nd Av NW	Ramsey	190	06/19/1986	CTCG	WEL	Yes
207	213225340025	0000126639	Active	Domestic	Stevenson, Jerry	7750 149th NW	Ramsey	170	07/07/1976	CTCG	WEL	Yes
208	223225330026	0000418467	Active	Domestic	Stoeckmann, Richard	7010 151st Av NW	Ramsey	112	07/24/1986	QBAA	WEL	Yes
209	213225320018	0000209281	Active	Domestic	Strate, Alen	15120 Chameleon St NW	Ramsey	110	09/20/1973	QBAA	WEL	Yes
210	203225410024	0000429102	Active	Domestic	Sutton	8030 152nd Av NW	Ramsey	96	02/03/1987	QBAA	WEL	Yes
211	203225420023	0000242750	Active	Not Available	Tekwall, Dwight	15200 Iguana St NW	Ramsey	0	09/01/1978	Not Available	WEL	Yes
212	283225330006	0000512849	Active	Domestic	Thomas, Jeffery & Scott, Kari	14275 Alpaca St NW	Ramsey	65	07/02/1992	QWTA	WEL	Yes
213	223225330016	0000559351	Active	Public Supply/Non-Comm.-Transient	Tom Thumb Food Market	14911 Ramsey Bl NW	Ramsey	190	05/26/1995	CTCG	WEL	Yes
214	213225440028	0000451462	Active	Domestic	Traines	7400 149th La NW	Ramsey	235	09/13/1988	CTCG	WEL	Yes
215	213225340019	0000768689	Active	Domestic	Ustimehuk, Leon	15001 Zeolite St NW	Ramsey	180	05/14/2009	CTCG	WEL	Yes
216	213225440021	0000168707	Active	Domestic	Wagner, Roy	7231 149th La NW	Ramsey	214	11/29/1979	CTCG	WEL	Yes
217	213225320017	0000279292	Active	Domestic	Williams Construction	15150 Chameleon St NW	Ramsey	65	10/11/1973	Not Available	WEL	Approximate

Table C-3

PCSI Results - Well Locations in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

PCSI ID	PID No.	Unique No.	Status	Use	Well Name	Well Location	City	Total Depth (Feet)	Date Completed	Aquifer	PCS Code	Location Verified
218	213225430024	0000439953	Active	Domestic	Williams, Ralph	7411 149th La NW	Ramsey	165	01/15/1988	QBAA	WEL	Yes
219	213225430029	0000429284	Active	Domestic	Williams, Ralph	7451 149th Av NW	Ramsey	188	10/01/1987	QBAA	WEL	Yes
220	213225330017	0000750676	Active	Domestic	Wochnick, Richard	14941 Chameleon St NW	Ramsey	78	10/09/2007	QBAA	WEL	Yes
221	213225330006	0000497487	Active	Domestic	Wolfbauer, Frank	7921 150th La NW	Ramsey	141	10/23/1991	QBAA	WEL	Yes
222	213225330018	0000768695	Active	Domestic	Wright, Mike & Sharen	14291 Chameleon St NW	Ramsey	140	07/16/2009	CTCG	WEL	Yes
223	223225330020	0000242554	Active	Domestic	Wyatt, M.L.	15001 Ramsey Bl	Ramsey	140	10/16/1975	CSTL	WEL	Yes
224	213225320024	0000242407	Active	Domestic	Zimmerman, C.S.	7810 151st La NW	Ramsey	198	06/00/1973	CTCG	WEL	Yes

Approximate - Parcel not found but location is approximately where that address would exist
Uncertain - Not enough address information to verify location

Table C-4

PCSI Results - Potential Class V Well Locations in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

PCSI ID	PID No.	Status	Location Name	Street Address	City or Twp	PCS Code	Location Verified
225	293225140011	Closed	Chalich Trucking Inc.	8049 146th Avenue NW	Ramsey	CVMVW	Yes
226	283225310003	Active	Ez Auto Sales And Service	7751 Highway 10 NW	Ramsey	CVMVW	Yes
227	283225430002	Active*	Import Auto Sales Inc	7443 Highway 10	Ramsey	CVMVW	Yes
228	283225320025	Active	Lake Region Rvs	7815 Riverdale Dr NW	Ramsey	CVMVW	Yes
229	283225320023	Active	Pleasureland Rv Center Inc	7900 Riverdale Dr NW	Ramsey	CVMVW	Yes
230	293225410022	Active	Quality Rv	8155 Riverdale Dr Nw	Ramsey	CVMVW	Approximate
231	283225320003	Active	Wilkins Used Cars/Anoka Auto	7955 Riverdale Drive NW	Ramsey	CVMVW	Yes

Potential Contaminant Source (PCS) Codes:
CVMVW - Motor Vehicle Waste Disposal Well (potential Class V)

Approximate - Parcel not found but location is approximately where that address would exist

* Indicates status of hazardous waste generator permit

Table C-5

PCSI Results - Storage Tank Locations in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

PCSI ID	PID Number	MPCA Agency Interests ID	Site	Site Address	City	PCS Code-Material Code	Above or Underground	Tank Number	Tank Capacity	Install Date	Tank Status	Tank Product/Product Released	Release Discovered Date	Release Report Date	Complete Site Closure Date	Location Verified
232	283225420002	140313	Elite Lift Truck	7575 Highway 10 NW	Ramsey	AST-F000	Aboveground Storage Tank	ESOC763	550	2/17/2012	Active	Used Oil	Not Applicable	Not Applicable	Not Applicable	Yes
233	253225430043	22165	Aca Management 367	5195 142nd Ave NW	Ramsey	UST-C000	Underground Storage Tank System	001	12,000	8/15/1990	Removed	Alcohol Blend	Not Applicable	Not Applicable	Not Applicable	Yes
233	253225430043	22165	Aca Management 367	5195 142nd Ave NW	Ramsey	UST-C000	Underground Storage Tank System	002	12,000	8/15/1990	Removed	Alcohol Blend	Not Applicable	Not Applicable	Not Applicable	Yes
233	253225430043	22165	Aca Management 367	5195 142nd Ave NW	Ramsey	UST-C000	Underground Storage Tank System	003	12,000	8/15/1990	Removed	Alcohol Blend	Not Applicable	Not Applicable	Not Applicable	Yes
234	363225120020	107235	City Of Ramsey	14100 Saint Francis Blvd NW	Ramsey	UST-F000	Underground Storage Tank System	001	550	9/15/1973	Removed	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
234	363225120020	107235	City Of Ramsey	14100 Saint Francis Blvd NW	Ramsey	UST-F000	Underground Storage Tank System	002	550	9/15/1973	Removed	Diesel	Not Applicable	Not Applicable	Not Applicable	Yes
235	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	AST-F000	Aboveground Storage Tank	1001	2,500	10/21/2016	Active	Gasoline, Non-Oxygenated	Not Applicable	Not Applicable	Not Applicable	Yes
235	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	AST-F000	Aboveground Storage Tank	1002	2,500	10/21/2016	Active	Diesel Fuel	Not Applicable	Not Applicable	Not Applicable	Yes
235	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	AST-F000	Aboveground Storage Tank	1003	2,500	10/21/2016	Active	Diesel Fuel	Not Applicable	Not Applicable	Not Applicable	Yes
235	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	AST-F000	Aboveground Storage Tank	1004	1,000	7/11/2016	Active	Diesel Fuel	Not Applicable	Not Applicable	Not Applicable	Yes
235	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	AST-F000	Aboveground Storage Tank	1005	300	10/21/2016	Active	Used Oil	Not Applicable	Not Applicable	Not Applicable	Yes
236	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	UST-F000	Underground Storage Tank System	001	10,000	1/1/1900	Removed	Diesel	Not Applicable	Not Applicable	Not Applicable	Yes
236	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	UST-F000	Underground Storage Tank System	002	10,000	1/1/1900	Removed	Diesel	Not Applicable	Not Applicable	Not Applicable	Yes
236	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	UST-F000	Underground Storage Tank System	003	6,000	1/1/1900	Removed	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
237	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	UST-W000	Underground Storage Tank System	004	560	1/1/1900	Removed	Used or waste oil	Not Applicable	Not Applicable	Not Applicable	Yes
238	363225120011	29715	Food N Fuel C15	13939 Saint Francis Blvd	Ramsey	UST-C000	Underground Storage Tank System	003	10,000	9/20/1987	Removed	Alcohol Blend	Not Applicable	Not Applicable	Not Applicable	Yes
238	363225120011	29715	Food N Fuel C15	13939 Saint Francis Blvd	Ramsey	UST-C000	Underground Storage Tank System	111	10,000	12/1/1985	Removed	Alcohol Blend	Not Applicable	Not Applicable	Not Applicable	Yes
238	363225120011	29715	Food N Fuel C15	13939 Saint Francis Blvd	Ramsey	UST-C000	Underground Storage Tank System	222	10,000	12/1/1985	Removed	Alcohol Blend	Not Applicable	Not Applicable	Not Applicable	Yes
239	363225120013	118201	Formerly Brooks Food Market #46	14051 Saint Francis Blvd	Ramsey	UST-F000	Underground Storage Tank System	001	8,000	8/3/1987	Removed	Gasoline	Not Applicable	Not Applicable	Not Applicable	Approximate
239	363225120013	118201	Formerly Brooks Food Market #46	14051 Saint Francis Blvd	Ramsey	UST-F000	Underground Storage Tank System	002	10,000	8/3/1987	Removed	Gasoline	Not Applicable	Not Applicable	Not Applicable	Approximate
239	363225120013	118201	Formerly Brooks Food Market #46	14051 Saint Francis Blvd	Ramsey	UST-F000	Underground Storage Tank System	003	10,000	8/3/1987	Removed	Gasoline	Not Applicable	Not Applicable	Not Applicable	Approximate
240	253225310011	148586	Holiday Stationstore #323	14350 Xkimo St NW	Ramsey	UST-F000	Underground Storage Tank System	001	20,000	7/23/2001	Active	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
240	253225310011	148586	Holiday Stationstore #323	14350 Xkimo St NW	Ramsey	UST-F000	Underground Storage Tank System	002	10,000	7/23/2001	Active	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
240	253225310011	148586	Holiday Stationstore #323	14350 Xkimo St NW	Ramsey	UST-F000	Underground Storage Tank System	003	10,000	7/23/2001	Active	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
240	253225310011	148586	Holiday Stationstore #323	14350 Xkimo St NW	Ramsey	UST-F000	Underground Storage Tank System	004	10,000	7/23/2001	Active	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
241	293225140014	105903	Oasis Market #535	14550 Armstrong Blvd NW	Ramsey	UST-F000	Underground Storage Tank System	001	10,000	5/26/1982	Removed	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
241	293225140014	105903	Oasis Market #535	14550 Armstrong Blvd NW	Ramsey	UST-F000	Underground Storage Tank System	002	10,000	5/26/1982	Removed	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
242	223225330016	105905	Ramsey Market	14911 Ramsey Blvd NW	Ramsey	UST-F000	Underground Storage Tank System	001	10,000	11/15/1976	Active	Gasoline	Not Applicable	Not Applicable	Not Applicable	Yes
242	223225330016	105905	Ramsey Market	14911 Ramsey Blvd NW	Ramsey	UST-F000	Underground Storage Tank System	002	10,000	11/15/1976	Active	E-10 - 10% ethanol & 90% gas	Not Applicable	Not Applicable	Not Applicable	Yes
242	223225330016	105905	Ramsey Market	14911 Ramsey Blvd NW	Ramsey	UST-F000	Underground Storage Tank System	003	10,000	10/22/1985	Active	Diesel	Not Applicable	Not Applicable	Not Applicable	Yes
243	363225120018	108904	Superamerica #4508	14000 Saint Francis Blvd	Ramsey	AST	Aboveground Storage Tank	1001	300	2/10/2011	Removed	Other	Not Applicable	Not Applicable	Not Applicable	Yes
244	363225120018	108904	Superamerica #4508	14000 Saint Francis Blvd	Ramsey	UST-F000	Underground Storage Tank System	001	12,000	10/25/1995	Active	E-10 - 10% ethanol & 90% gas, Diesel	Not Applicable	Not Applicable	Not Applicable	Yes
244	363225120018	108904	Superamerica #4508	14000 Saint Francis Blvd	Ramsey	UST-F000	Underground Storage Tank System	002	10,000	10/25/1995	Active	E-10 - 10% ethanol & 90% gas, Diesel	Not Applicable	Not Applicable	Not Applicable	Yes
244	363225120018	108904	Superamerica #4508	14000 Saint Francis Blvd	Ramsey	UST-F000	Underground Storage Tank System	003	10,000	10/25/1995	Active	E-10 - 10% ethanol & 90% gas, Diesel	Not Applicable	Not Applicable	Not Applicable	Yes
244	363225120018	108904	Superamerica #4508	14000 Saint Francis Blvd	Ramsey	UST-F000	Underground Storage Tank System	004	10,000	10/25/1995	Active	E-10 - 10% ethanol & 90% gas, Diesel	Not Applicable	Not Applicable	Not Applicable	Yes
245	253225430043	22165	Aca Management 367	5195 142nd Ave NW	Ramsey	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Gasoline, Unleaded	7/20/2001	7/20/2001	12/4/2002	Yes
246	273225230004	25184	Connexus Energy	14601 Ramsey Blvd	Ramsey	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Diesel	8/4/2016	8/4/2016	12/27/2016	Yes
247	363225210009	38300	Egan Oil Co	500 Bunker Lake Blvd NW	Anoka	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Unknown	4/29/2010	4/29/2010	6/13/2011	Yes
248	363225120011	29715	Food N Fuel C15	13939 Saint Francis Blvd	Ramsey	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Gasoline, Unleaded	4/24/2006	4/24/2006	12/15/2006	Yes
249	363225120013	118201	Formerly Brooks Food Market #46	14051 Saint Francis Blvd	Ramsey	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Unknown	6/14/1994	6/14/1994	9/30/1994	Approximate
250	213225440027	194638	Menkneld Property	Ramsey Blvd NW & 149th Ave Nw	Ramsey	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Unknown	2/20/1998	2/24/1998	2/25/2008	Approximate
251	293225140014	105903	Oasis Market #535	14550 Armstrong Blvd NW	Ramsey	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Gasoline, Unleaded	6/13/1994	6/14/1994	9/30/1994	Yes
252	293225140010	191649	Ramsey Crossing Property	8019 146th Ave NW	Ramsey	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Unknown	5/29/2013	5/29/2013	1/16/2014	Yes
253	223225330016	105905	Ramsey Market	14911 Ramsey Blvd NW	Ramsey	LUST	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Closed	Gasoline, Unleaded	6/9/2011	6/13/2011	1/15/2013	Yes

LUST - Leaking Underground Storage Tank
AST - Aboveground Storage Tank
UST - Underground Storage Tank

Approximate - Parcel not found but location is approximately where that address would exist

Table C-6

PCSI Results - Chemical Storage Sites in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

Non-Agricultural Chemicals							
PCSI ID	**PID Number**	**CAS Number**	**Facility Name**	**Site Address**	**Chemicals**	**PCS Code - Material Code**	**Location Verified**
254	283225430003	20950002	Amerigas Propane Lp #3900	7411 W Hwy 10	Propane (Liquified Petroleum Gas)	STOR-F000	Yes
255	273225230004	20950017	Connexus Energy	14601 Ramsey Blvd	Diesel Fuel, Gasoline	STOR-F000	Yes

Table C-7

PCSI Results - Spill Locations in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

PCSI ID	PID No.	MPCA Incident ID	Location Name	Street Address	City or Twp	Status	Substance	PCS Code	Location Verified
256	363225120013	20568	Brooks/Fina/Superette	14051 N W Saint Francis Blvd	Ramsey	Closed	Gasoline, Leaded	SPL	Yes
257	273225230004	101830	Connexus Energy	14601 Ramsey Blvd	Ramsey	Closed	Diesel Fuel	SPL	Yes
258	273225230004	101827	Connexus Energy	14601 Ramsey Blvd	Ramsey	Closed	Diesel Fuel	SPL	Yes
259	273225230004	101251	Connexus Energy	14601 Ramsey Boulevard	Ramsey	Closed	Unknown	SPL	Yes
260	273225230004	85905	Connexus Energy	14601 Ramsey Blvd	Ramsey	Closed	Diesel Fuel	SPL	Yes
261	253225310011	61874	Holiday Companies	14350 Xkimo St	Ramsey	Closed	Gasoline, Unleaded	SPL	Yes
262	363225120018	55155	Mississippi Transport	14000 Saint Francis St	Ramsey	Closed	Gasoline, Unleaded	SPL	Yes
263	363225210140	63438	Not Available	14035 Argon St	Ramsey	Closed	Paint - Latex	SPL	Yes
264	223225330016	15493	Wayne Transport	14911 Ramsey Blvd	Ramsey	Closed	Petroleum Other	SPL	Yes

Table C-8

PCSI Results - Potential Contaminant Source Locations in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

PCSI ID	PID No.	MPCA Agency Interests ID	Status	Location Name	Street Address	City or Twp	PCS Code	Location Verified
265	283225310005	193179	Active	Auto Ranch	7665 Highway 10 NW	Ramsey	BMS	Yes
266	283225310003	93602	Active	E-Z Auto Sales Inc	7751 Highway 10 Ste 6	Ramsey	BMS	Yes
267	283225430002	90420	Active	Import Auto Sales Inc	7443 Highway 10	Ramsey	BMS	Yes
268	203225340004	189406	Active	Ramsey School Site	See Location Description	Ramsey	BMS	Uncertain
269	363225120013	191178	Active	River's Bend Plaza	14001 St. Francis Blvd NW	Ramsey	BMS	Yes
270	283225240017	192296	Active	Senior Housing Parcel	County Road 116	Ramsey	BMS	Uncertain

PCS Codes
BMS - Brownfields

Uncertain - Not enough address information to verify location

Table C-9

High Capacity Wells within One Mile of the DWSMA
City of Ramsey Part 2 WHPP Amendment

PCSI ID	Permit Number	Unique ID	Status	Permittee	Use	Aquifer	Permitted Volume MGY
1	1985-6005	161441	Active	Ramsey, City Of	Municipal/Public Water Supply	CWON	850
2	1985-6005	416183	Active	Ramsey, City Of	Municipal/Public Water Supply	CTCG	850
3	1985-6005	580303	Active	Ramsey, City Of	Municipal/Public Water Supply	CTCW	850
4	1985-6005	580313	Active	Ramsey, City Of	Municipal/Public Water Supply	CTCW	850
5	1985-6005	593672	Active	Ramsey, City Of	Municipal/Public Water Supply	CTCW	850
6	1985-6005	706840	Active	Ramsey, City Of	Municipal/Public Water Supply	CTCW	850
7	1985-6005	743832	Active	Ramsey, City Of	Municipal/Public Water Supply	CTCW	850
8	1985-6005	743833	Active	Ramsey, City Of	Municipal/Public Water Supply	CTCW	850
183	2015-3019	773399	Active	Ramsey, City of	Landscaping/Athletic Field Irrigation	CTCG	8
122215	1999-6047	122215	Active	Marshall Concrete Products	Non-metallic Processing (rubber, plastic, glass, concrete)	CTCG	7
201178	1976-6187	201178	Active	City of Anoka	Municipal/Public Water Supply	CEMS	1200
201182	1976-6187	201182	Active	City of Anoka	Municipal/Public Water Supply	CMTS	1200
209269	1976-6186	209269	Active	City of Anoka	Golf Course Irrigation	QWTA	65
224625	1976-6187	224625	Active	City of Anoka	Municipal/Public Water Supply	CWMS	1200
417499	2015-2400	417499	Active	Kurak, Thomas	Once-through Systems (HVAC)	CTCG	2
463025	1991-6175	463025	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463026	1991-6175	463026	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463027	1991-6175	463027	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463028	1991-6175	463028	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463029	1991-6175	463029	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463030	1991-6175	463030	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463031	1991-6175	463031	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463032	1991-6175	463032	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463033	1991-6175	463033	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463034	1991-6175	463034	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463035	1991-6175	463035	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463036	1991-6175	463036	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463037	1991-6175	463037	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT	580

Table C-9

High Capacity Wells within One Mile of the DWSMA
City of Ramsey Part 2 WHPP Amendment

PCSI ID	Permit Number	Unique ID	Status	Permittee	Use	Aquifer	Permitted Volume MGY
463038	1991-6175	463038	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT	580
463039	1991-6175	463039	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QBAA	580
463040	1991-6175	463040	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580
463041	1991-6175	463041	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT	580
463042	1991-6175	463042	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT	580
463043	1991-6175	463043	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT	580
463044	1991-6175	463044	Active	MN Pollution Control Agency - St Paul	Pollution Containment	CSLT	580
512754	1993-6137	512754	Active	Anoka-Hennepin ISD 11	Landscaping/Athletic Field Irrigation	CTCW	15
676405	1976-6187	676405	Active	City of Anoka	Municipal/Public Water Supply	CTCW	1200
785266	2012-0951	785266	Active	Nathe, Joseph	Agricultural Crop Irrigation	QWTA	18.6
792110	1991-6175	792110	Active	MN Pollution Control Agency - St Paul	Pollution Containment	QWTA	580

Figures

A - Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.

AE - The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.

X - Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.

T32N R25W S17
T32N R25W S16
T32N R25W S15
T32N R25W S14
T32N R25W S20
T32N R25W S21
T32N R25W S22
T32N R25W S23
T32N R25W S24
T32N R25W S29
T32N R25W S27
T32N R25W S26
T32N R25W S25
T32N R25W S28
T32N R25W S33
T32N R25W S34
T32N R25W S35
T32N R25W S36
T120N R22W S4
T120N R22W S9
T120N R22W S10
T120N R22W S11
T31N R25W S2
T31N R25W S1

Jeglens Marsh
Ramsey
Grass
Unnamed (south portion)
Rum River
Mississippi River
Dayton
Anoka
Champlin

Anoka North DWSMA
Anoka Central DWSMA
Anoka West DWSMA
Dayton 2 DWSMA

1 2 3 4 5 6 7 8

56 83 5 47 57 10 12 116 144

- Municipal Well
- Railroad
- PWI Watercourse
- PWI Basin
- Ramsey DWSMA
- Nearby DWSMA
- Emergency Response Area
- Wellhead Protection Area
- Municipal Boundary
- PLS Section

FEMA Flood Zone

- A
- AE
- X

Aquifer Vulnerability

- Moderate

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

N

0 1,000 2,000
Feet

Image Source: FSA (2017)

MUNICIPAL WELLS, DWSMA, AND VULNERABILITY
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-1

BARR

Barr Footer: ArcGIS 10.6.1, 2019-07-08 11:42 File: J:\Projects\23\02\10811\Maps\Reports\WHPPII_2019\FigC-01 Municipal Wells_DWSMA and Vulnerability.mxd User: JJL2

Municipal Well
Fault Line
Ramsey DWSMA
Municipal Boundary

Bedrock Subcrop*

Eau Claire Formation
Jordan Sandstone
St. Lawrence Formation
Tunnel City Group
Wonewoc Sandstone

* Minnesota Geological Survey

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

N

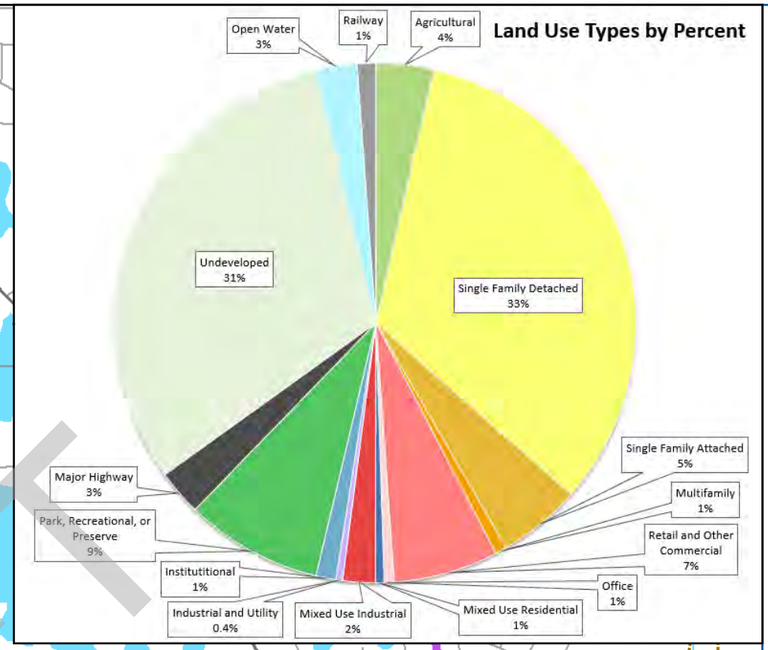
0 1,000 2,000
Feet

BEDROCK SUBCROP
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-2

BARR

Barr Footer: ArcGIS 10.6.1, 2019-07-03 13:45 File: I:\Projects\23\0021\081\Maps\Reports\WHPPII_2019\FigC-02 Bedrock Subcrop.mxd User: JJL2



Municipal Well

Ramsey DWSMA

Property Boundary

Municipal Boundary

Current Land Use*

- Single Family Detached
- Single Family Attached
- Multifamily
- Retail and Other Commercial
- Office
- Mixed Use Residential
- Mixed Use Industrial
- Industrial and Utility
- Institutional
- Park, Recreational or Preserve
- Major Highway
- Railway
- Agricultural
- Undeveloped
- Water

* Land Use Data (Met Council 2016 Generalized Land Use)

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

N

0 1,000 2,000

Feet

CURRENT LAND USE
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-3

Barr Footer: ArcGIS 10.6.1, 2019-07-03 12:43 File: I:\Projects\23\02\1081\Maps\Reports\WHPPII 2019\FigC-03 Current Land Use.mxd User: JJL2

Municipal Well

Ramsey DWSMA

Property Boundary

Municipal Boundary

City of Ramsey Zoning*

R-1: Rural Developing (outside MUSA)

R-1: MUSA

R-2: Medium-Density Residential

R-3: High-Density Residential

B-1: Business District

B-2: Business District

H-1: Business District

E-1: Employment District

E-2: Employment District

MU-PUD: Mixed-Use, Planned Unit Development

PUD: Planned Unit Development

COR: The COR

P: Public/Quasi-Public District

* City of Ramsey

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

N

0 1,000 2,000

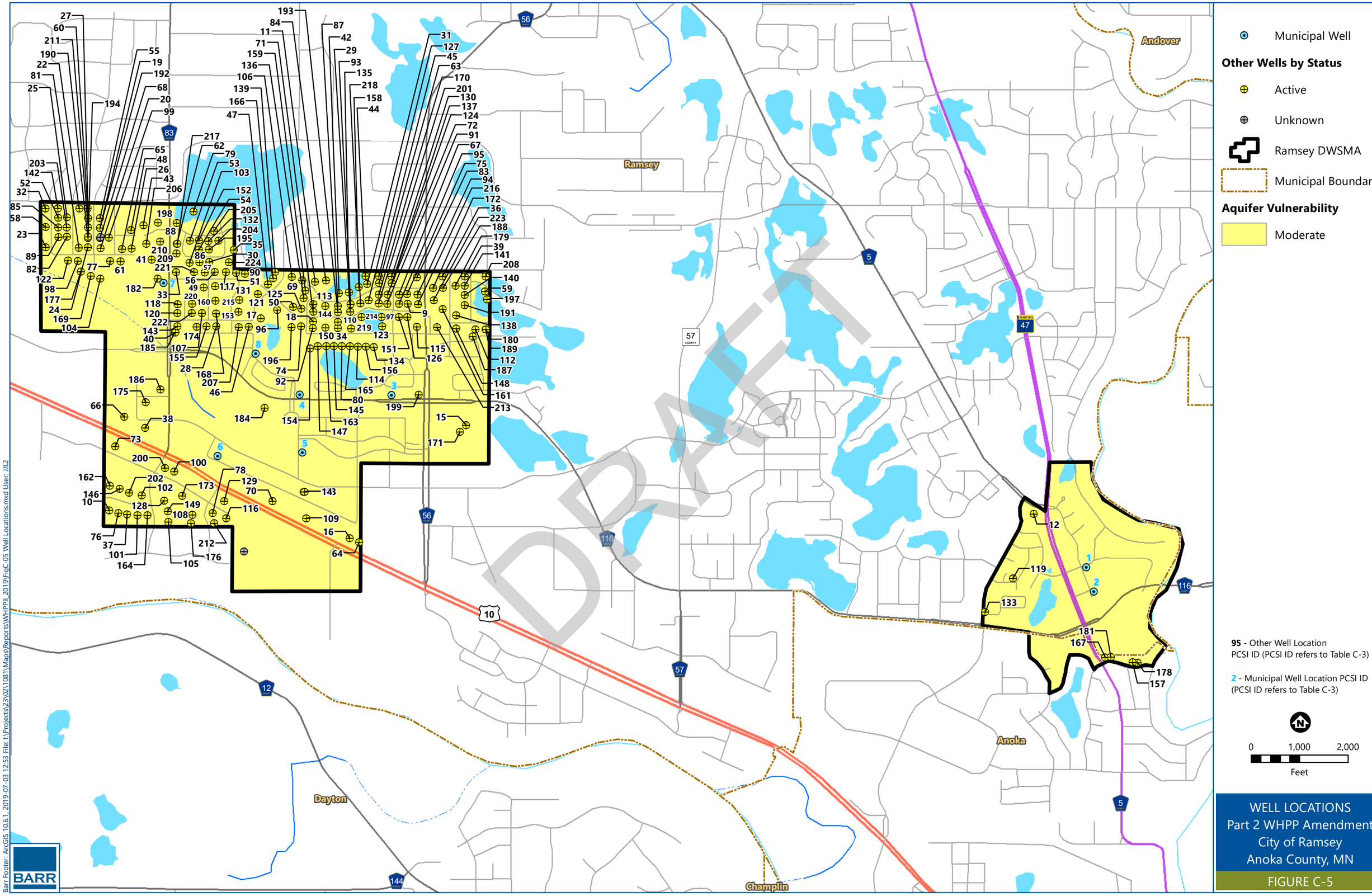
Feet

CURRENT ZONING - RAMSEY
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-4

BARR

Barr Footer: ArcGIS 10.6.1, 2019-07-09 11:07 File: I:\Projects\23\02\1081\Maps\Reports\WHPP\I_2019\FigC-04 Current Zoning.mxd User: JJL2

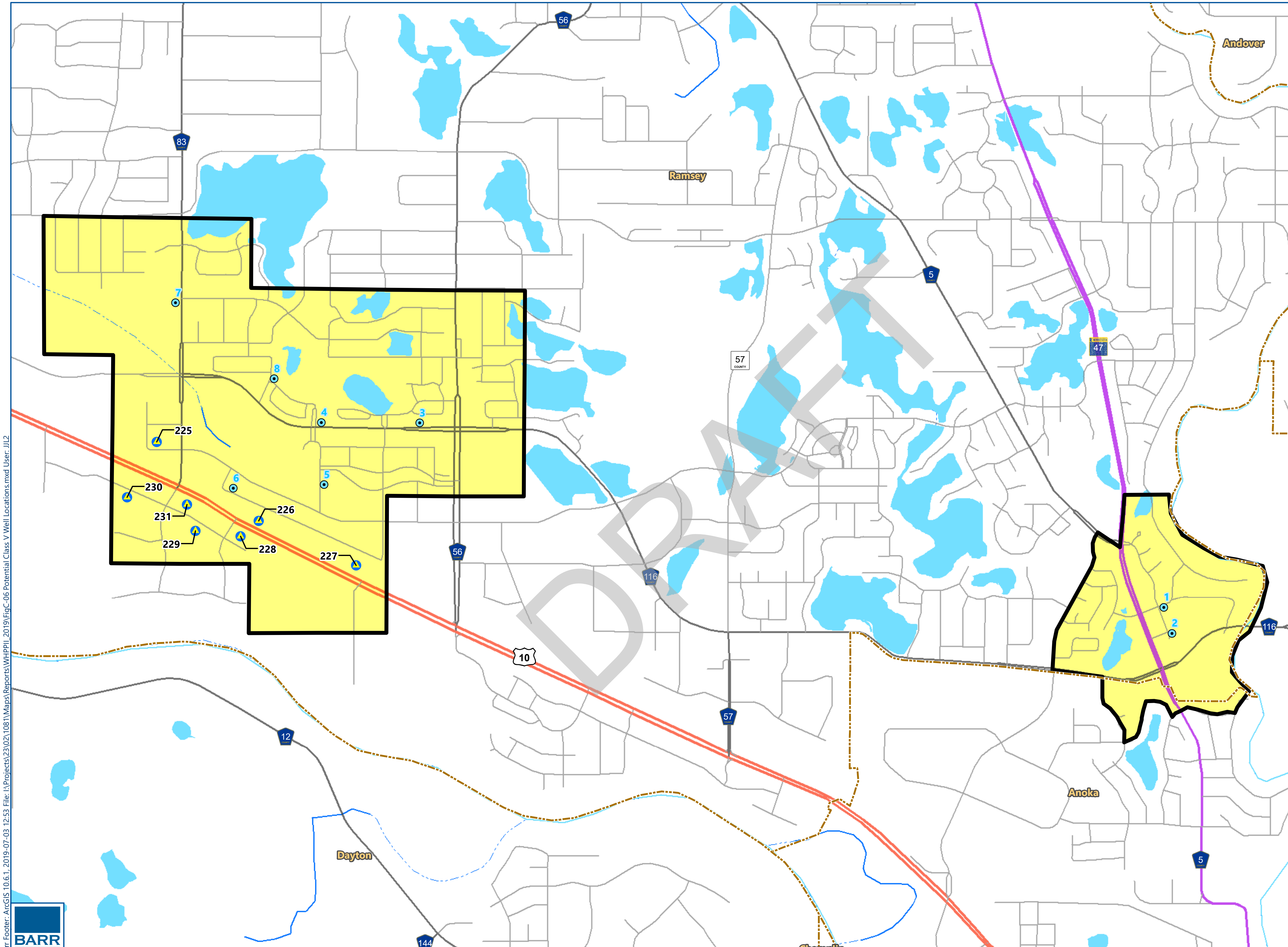


WELL LOCATIONS
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-5

BARR

Barr Footer: ArcGIS 10.6.1, 2019-07-03 12:53 File: I:\Projects\23\02\1081\Maps\Reports\WHPPII_2019\FigC-05 Well Locations.mxd User: JJL2



Municipal Well

Potential Class V Well Location

Ramsey DWSMA

Municipal Boundary

Aquifer Vulnerability

Moderate

225 - Potential Class V Well Location PCSI ID (PCSI ID refers to Table C-4)

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

0 1,000 2,000
Feet

POTENTIAL CLASS V WELL LOCATIONS
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-6

Municipal Well
MPCA LUST Site

Tank Location

Active
Removed
Ramsey DWSMA
Municipal Boundary

Aquifer Vulnerability

Moderate

235 - Tank/LUST Location PCSI ID (PCSI ID refers to Table C-5)

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

0 1,000 2,000
Feet

STORAGE TANK LOCATIONS
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-7

Municipal Well

Non-agricultural Chemical Storage Location

Ramsey DWSMA

Municipal Boundary

Aquifer Vulnerability

Moderate

255 - Chemical Storage Location PCSI ID (PCSI ID refers to Table C-6)

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

0 1,000 2,000

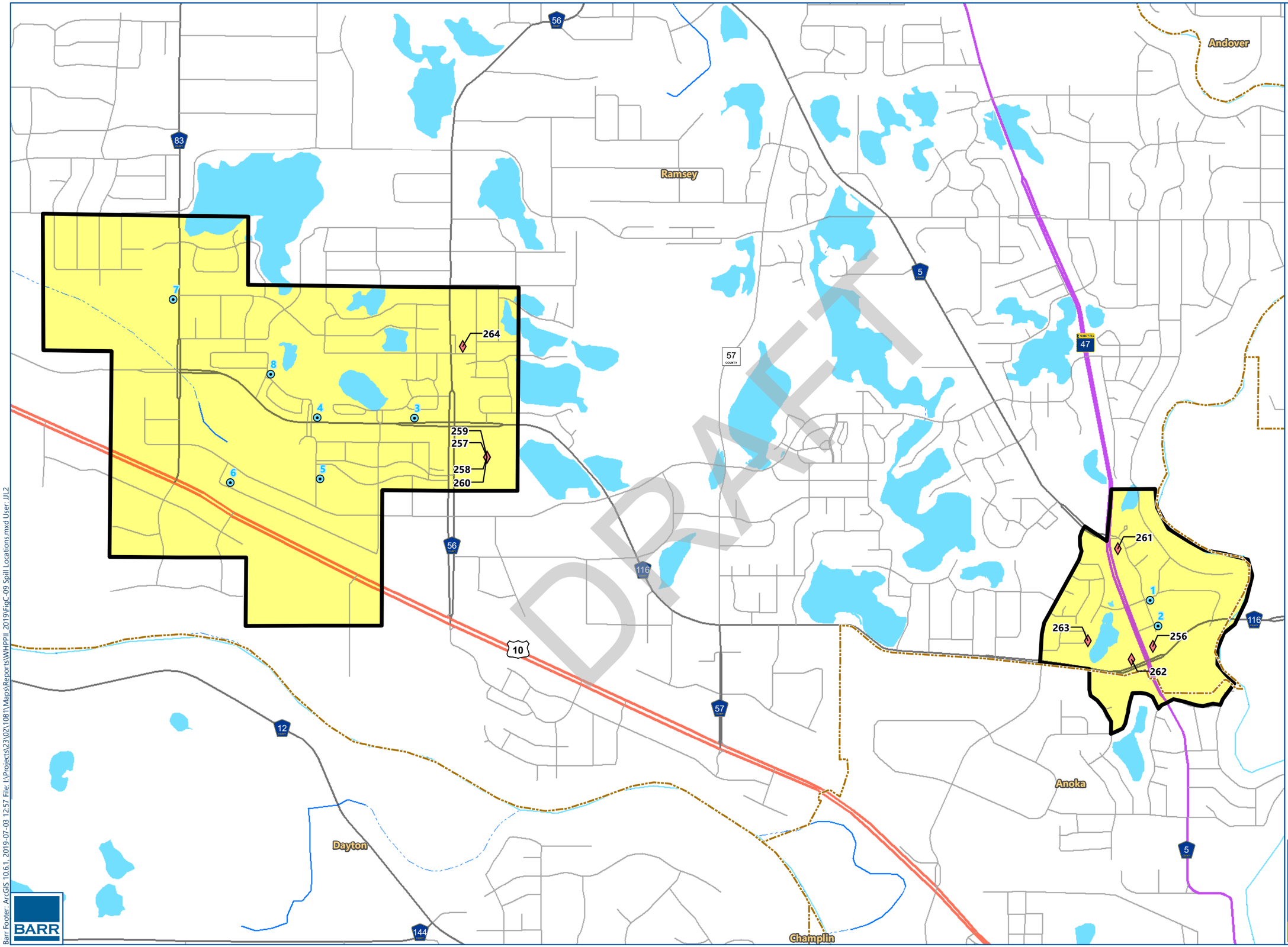
Feet

CHEMICAL STORAGE TANK LOCATIONS

Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-8

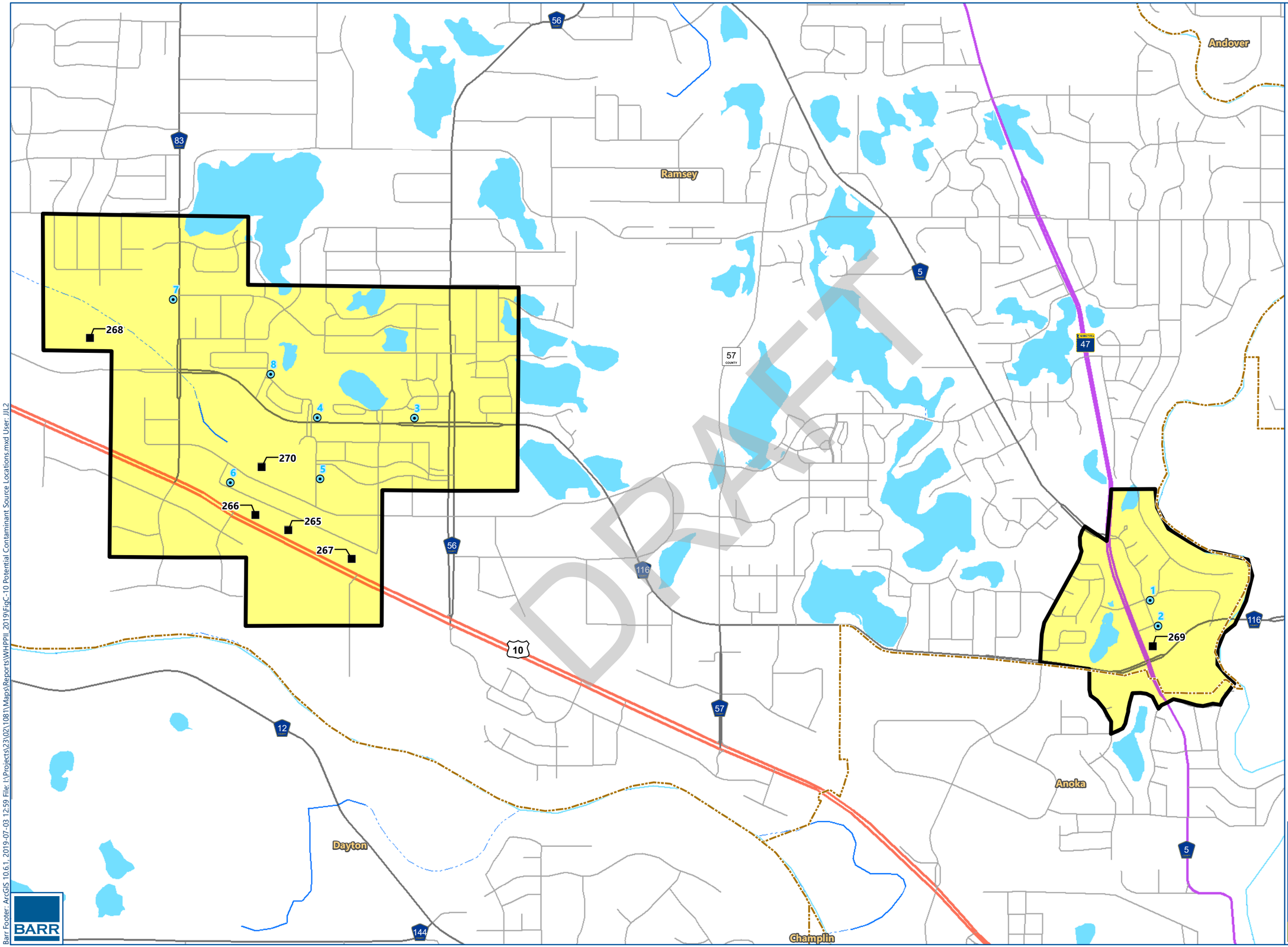
Barr Footer: ArcGIS 10.6.1, 2019-07-03 12:54 File: I:\Projects\23\02\10811\Maps\Reports\WHPPII_2019\FigC-08 Chemical Storage Tank Locations.mxd User: JJL2



SPILL LOCATIONS
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-9

BARR

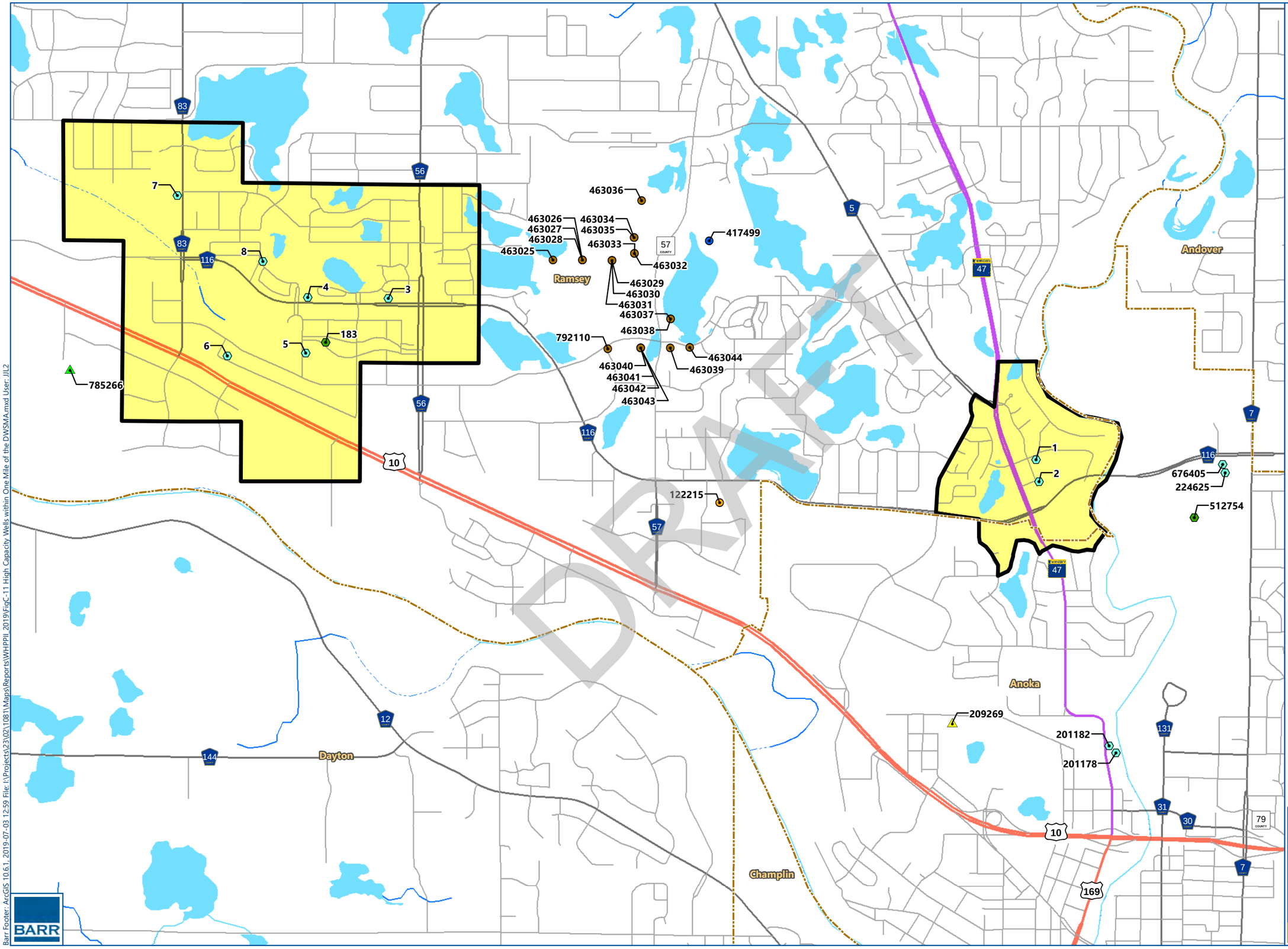


POTENTIAL CONTAMINANT SOURCE LOCATIONS
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-10

BARR

Barr Footer: ArcGIS 10.6.1, 2019-07-03 12:59 File: I:\Projects\23\02\1081\Maps\Reports\WHPPII_2019\FigC-10 Potential Contaminant Source Locations.mxd User: JJL2



Barr Footer: ArcGIS 10.6.1, 2019-07-03 12:59 File: I:\Projects\23\02\1081\Maps\Reports\WHPPII_2019\FigC-11 High Capacity Wells within One Mile of the DWSMA.mxd User: JJL2

Municipal Well
Ramsey DWSMA
Municipal Boundary

Historical (1984) Land Use*

Single Family Residential
Commercial
Industrial
Airports
Parks & Recreation
Vacant/Agricultural
Major Four Lane Highways
Open Water Bodies

* Historical Land Use Data (Metropolitan Council)

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

N

0 1,000 2,000
Feet

HISTORICAL LAND USE
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-12

Ramsey
Andover
Anoka
Dayton
Champlin

Barr Footer: ArcGIS 10.6.1, 2019-07-03 13:08 File: I:\Projects\23\02\1081\Maps\Reports\WHPPII_2019\FigC-12 Historical Land Use.mxd User: JJL2

Municipal Well

Natural Gas Pipeline*

Petroleum Pipeline*

Ramsey DWSMA

Municipal Boundary

Aquifer Vulnerability

Moderate

* Minnesota Office of Pipeline Safety (MnOPS)

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

0 1,500 3,000

Feet

NATURAL GAS AND PETROLEUM PIPELINES
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-13

Municipal Well

Sanitary Manhole*

Sanitary Line*

Ramsey DWSMA

Municipal Boundary

Aquifer Vulnerability

Moderate

* City of Ramsey

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

0 1,500 3,000

Feet

SANITARY SEWER MAP
CITY OF RAMSEY
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-14

Municipal Well
Stormwater Pond*
Stormwater Manhole*
Stormwater Line*
Ramsey DWSMA
Municipal Boundary

Aquifer Vulnerability

Moderate

* City of Ramsey

2 - Municipal Well Location PCSI ID (PCSI ID refers to Table C-3)

0 1,500 3,000
Feet

STORM SEWER MAP
CITY OF RAMSEY
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-15

Ramsey
Andover
Dayton
Champlin
Anoka
Coon Rapids

Attachment C-1

IWMZ Inventories

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	1020035 **COMMUNITY**
NAME	Ramsey
ADDRESS	Ramsey Water Superintendent, 7550 Sunwood Drive, Ramsey, MN 55303

FACILITY (WELL) INFORMATION

NAME	Well #1
FACILITY ID	S01
UNIQUE WELL NO.	161441
COUNTY	Anoka

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

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

PWS ID / FACILITY ID	1020035 S01	UNIQUE WELL NO.	161441

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		

PWS ID / FACILITY ID	1020035 S01	UNIQUE WELL NO.	161441

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				
*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		
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		Y	100	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		Y	150	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		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		Y	200	Y
*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		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		

PWS ID / FACILITY ID	1020035 S01	UNIQUE WELL NO.	161441

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				
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		
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							
GPR	Gravel pocket receiving clear water drainage	30	N/A		Y	30	Y
SBM	Sewer, buried collector, municipal, pressurized, open jointed, or unapproved materials	50	50		Y	70	Y
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	65	Y
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	65	Y
FFH	Fire or flushing hydrant	10	N/A		Y	30	N

* 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.

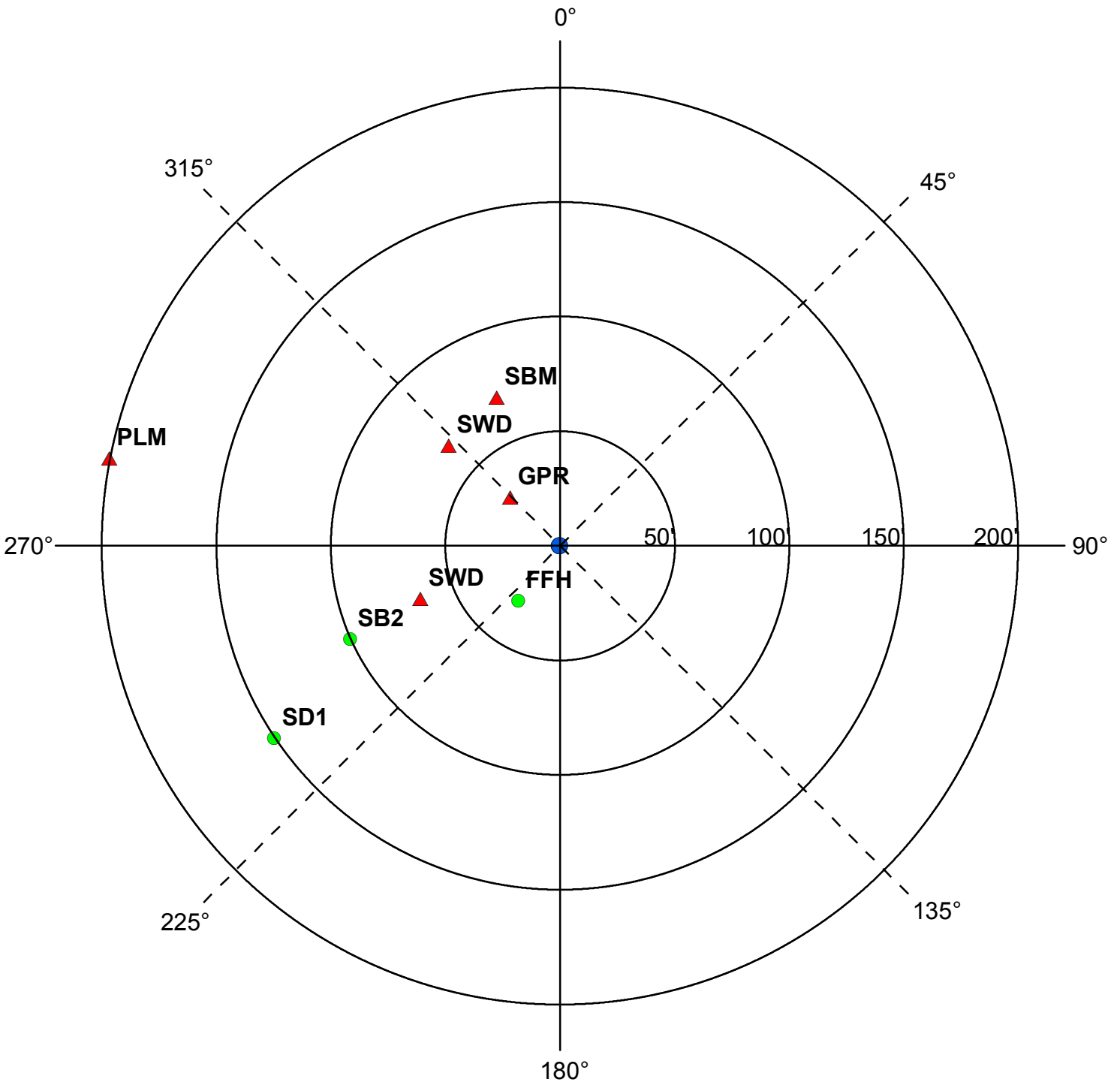
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; 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	1020035 S01	UNIQUE WELL NO.	161441

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	Freitag, John	DATE	6 - 12 - 2019

PWS ID / FACILITY ID	1020035 S01	UNIQUE WELL NO.	161441

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

COMMENTS

The PLM (contaminant plume) is the site of the former Amoco Station.

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	1020035	**COMMUNITY**
NAME	Ramsey	
ADDRESS	Ramsey Water Superintendent, 7550 Sunwood Drive, Ramsey, MN 55303	

FACILITY (WELL) INFORMATION

NAME	Well #2
FACILITY ID	S02
UNIQUE WELL NO.	416183
COUNTY	Anoka

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

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

PWS ID / FACILITY ID	1020035 S02	**UNIQUE WELL NO.**	416183

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		

PWS ID / FACILITY ID	1020035 S02	UNIQUE WELL NO.	416183

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				
*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		
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		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		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		

PWS ID / FACILITY ID	1020035 S02	UNIQUE WELL NO.	416183

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				
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		
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							
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	80	N
WAT	Stream, river, pond, lake, wetland	50	50		Y	150	Y
FPH	Frost proof yard hydrant	10	10		Y	50	N

* 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.

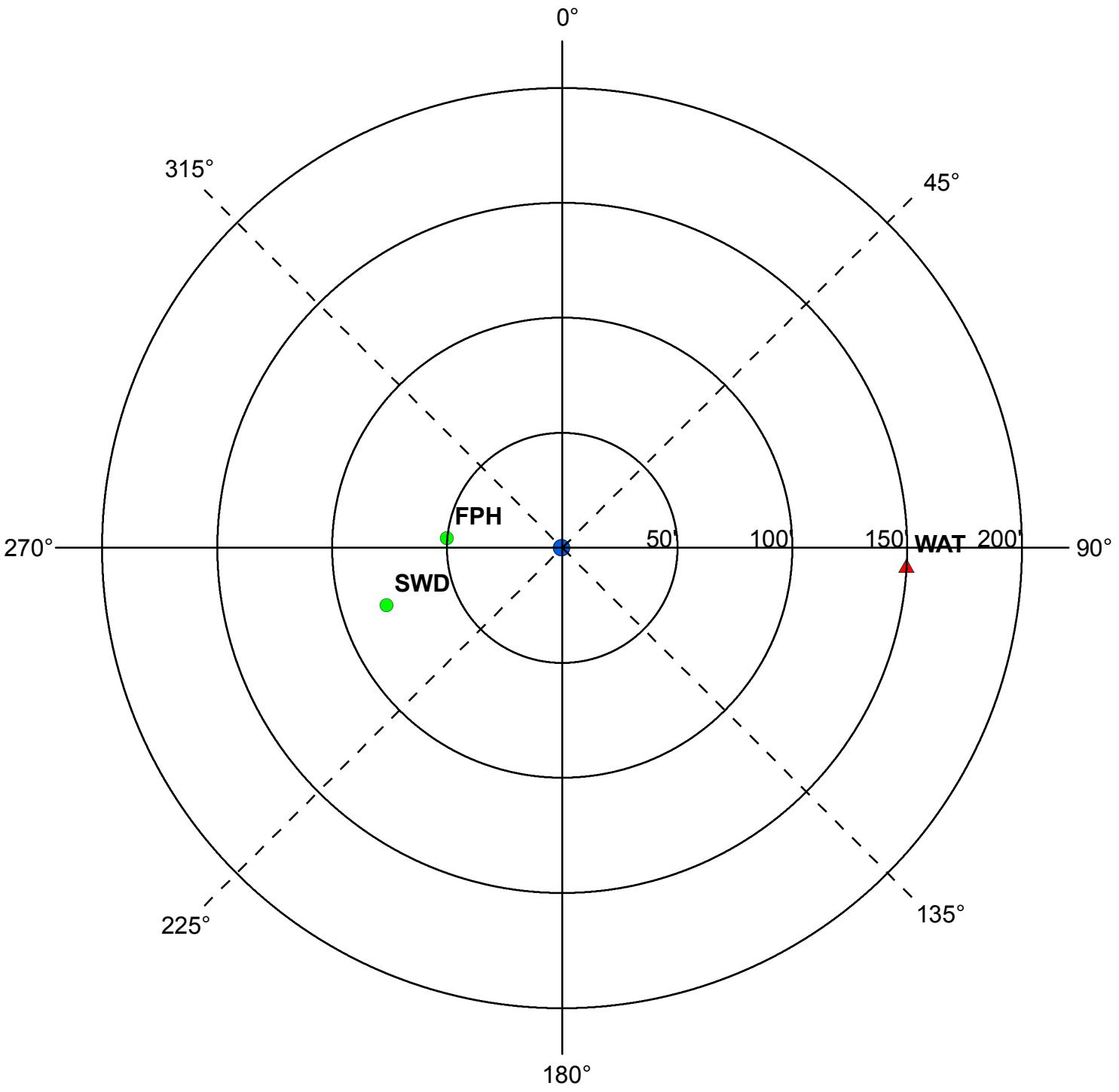
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; 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	1020035 S02	UNIQUE WELL NO.	416183

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	Freitag, John	DATE	6 - 12 - 2019

PWS ID / FACILITY ID	1020035 S02	UNIQUE WELL NO.	416183

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

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	1020035	**COMMUNITY**
NAME	Ramsey	
ADDRESS	Ramsey Water Superintendent, 7550 Sunwood Drive, Ramsey, MN 55303	

FACILITY (WELL) INFORMATION

NAME	Well #3
FACILITY ID	S04
UNIQUE WELL NO.	580303
COUNTY	Anoka

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

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

PWS ID / FACILITY ID	1020035 S04	**UNIQUE WELL NO.**	580303

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		

PWS ID / FACILITY ID	1020035 S04	UNIQUE WELL NO.	580303

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				
*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		
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		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		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		

PWS ID / FACILITY ID	1020035 S04	UNIQUE WELL NO.	580303

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				
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		
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		Y	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							
GPR	Gravel pocket receiving clear water drainage	30	N/A		Y	30	Y
SBA	Sewer buried, approved, air tested	50	20		Y	180	Y
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	180	Y
FFH	Fire or flushing hydrant	10	N/A		Y	40	N

* 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.

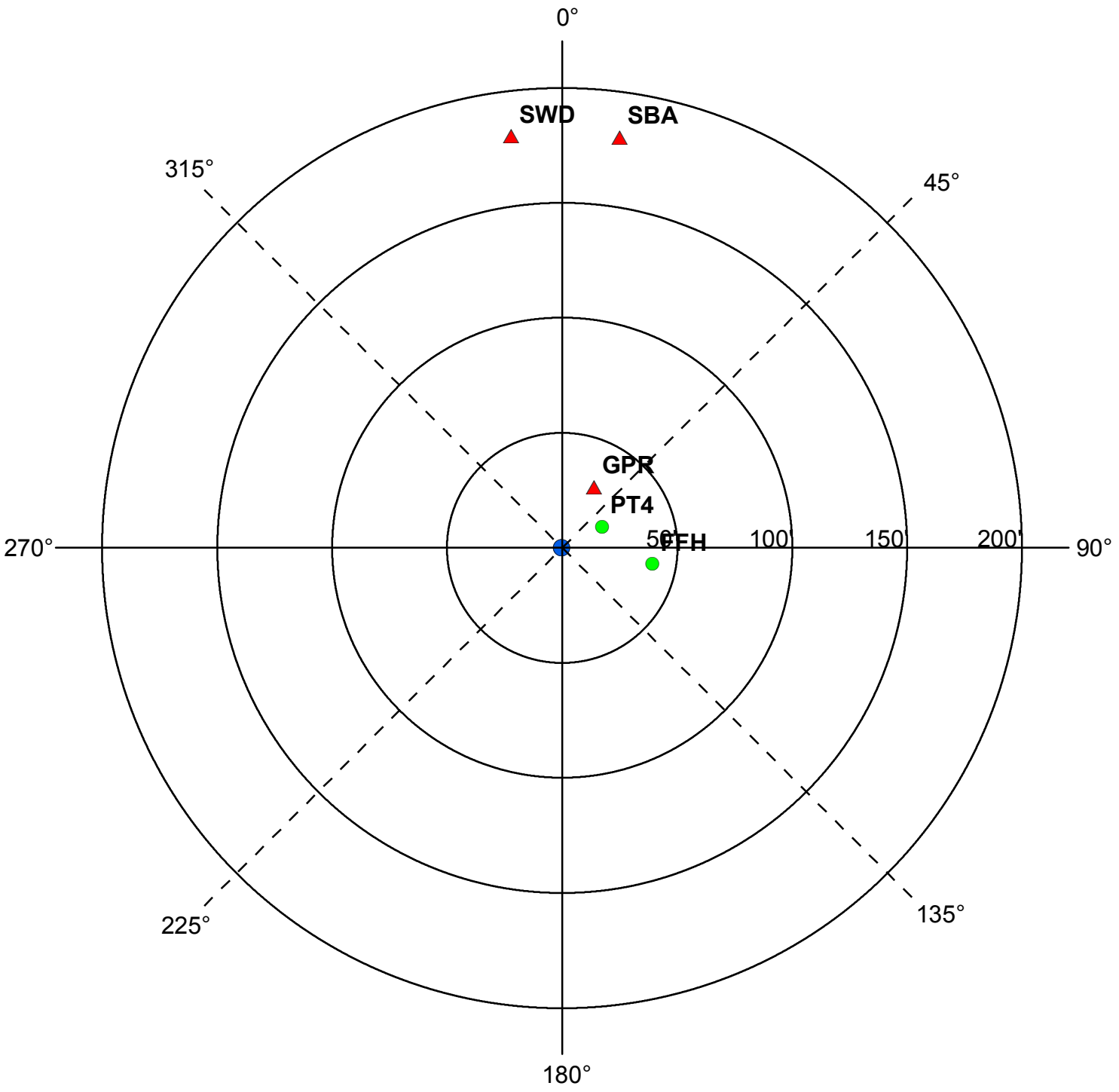
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; 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	1020035 S04	UNIQUE WELL NO.	580303

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	Freitag, John	DATE	6 - 12 - 2019

PWS ID / FACILITY ID	1020035 S04	UNIQUE WELL NO.	580303

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

COMMENTS

PT4 is a back-up generator with appropriate safeguards.

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	1020035 **COMMUNITY**
NAME	Ramsey
ADDRESS	Ramsey Water Superintendent, 7550 Sunwood Drive, Ramsey, MN 55303

FACILITY (WELL) INFORMATION

NAME	Well #4
FACILITY ID	S05
UNIQUE WELL NO.	580313
COUNTY	Anoka

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

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

PWS ID / FACILITY ID	1020035 S05	**UNIQUE WELL NO.**	580313

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		

PWS ID / FACILITY ID	1020035 S05	UNIQUE WELL NO.	580313

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				
*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		
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		Y	70	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		Y	80	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.		Y	50	Y
WEL	Operating well	record dist.	record dist.		Y	107	
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		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		

PWS ID / FACILITY ID	1020035 S05	UNIQUE WELL NO.	580313

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				
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		
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							
PIT	Pit	50	20		Y	30	N
FFH	Fire or flushing hydrant	10	N/A		Y	50	Y

* 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.

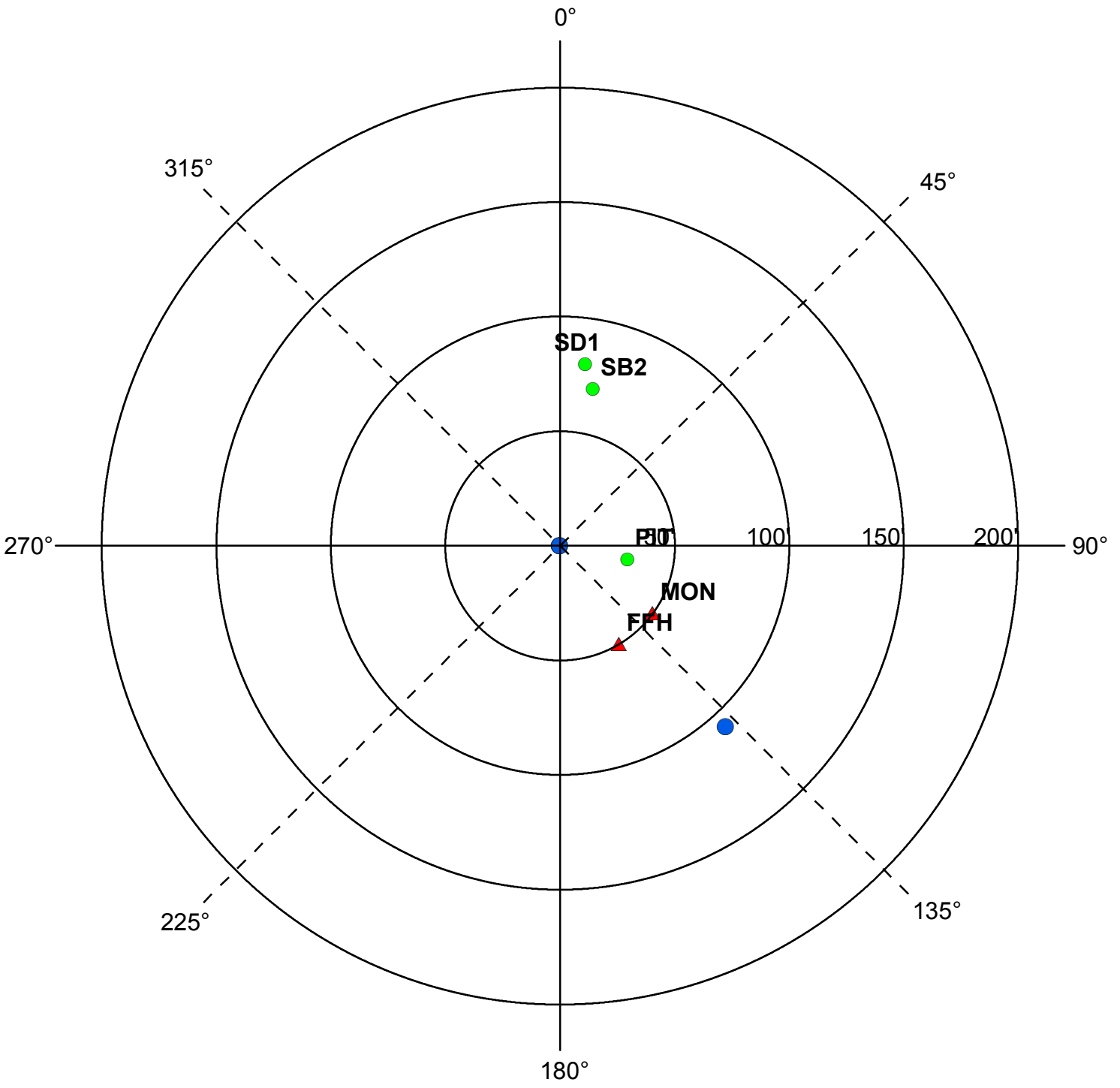
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; 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	1020035 S05	UNIQUE WELL NO.	580313

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	Freitag, John	DATE	6 - 12 - 2019

PWS ID / FACILITY ID	1020035 S05	UNIQUE WELL NO.	580313

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

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	1020035 **COMMUNITY**
NAME	Ramsey
ADDRESS	Ramsey Water Superintendent, 7550 Sunwood Drive, Ramsey, MN 55303

FACILITY (WELL) INFORMATION

NAME	Well #5
FACILITY ID	S06
UNIQUE WELL NO.	593672
COUNTY	Anoka

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

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

PWS ID / FACILITY ID	1020035 S06	UNIQUE WELL NO.	593672

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		

PWS ID / FACILITY ID	1020035 S06	UNIQUE WELL NO.	593672

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				
*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		
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		Y	110	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		Y	120	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		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		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		

PWS ID / FACILITY ID	1020035 S06	UNIQUE WELL NO.	593672

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				
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		
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							
GPR	Gravel pocket receiving clear water drainage	30	N/A		Y	50	N
FFH	Fire or flushing hydrant	10	N/A		Y	80	Y

* 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.

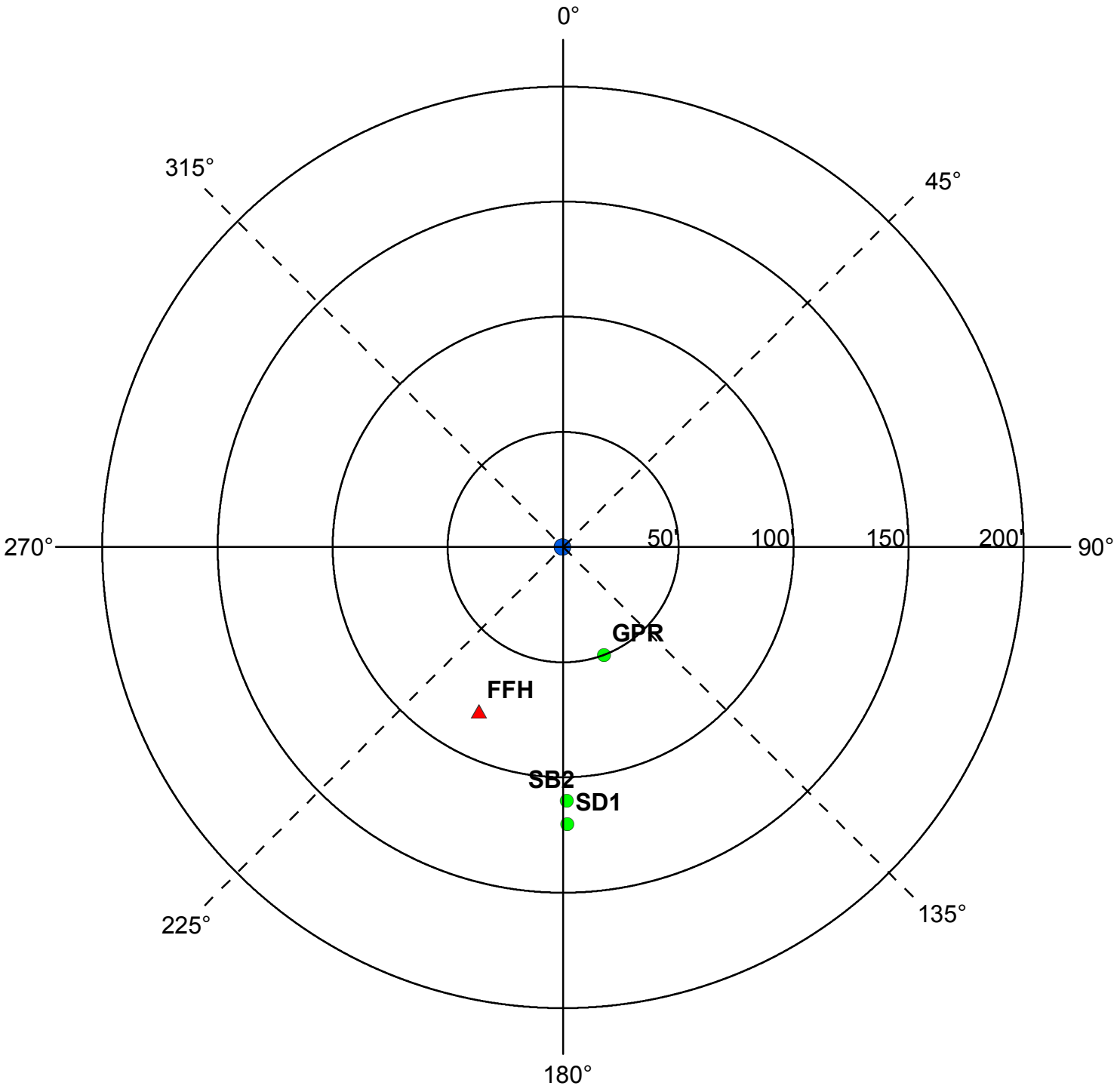
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; 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	1020035 S06	UNIQUE WELL NO.	593672

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	Freitag, John	DATE	6 - 12 - 2019

PWS ID / FACILITY ID	1020035 S06	UNIQUE WELL NO.	593672

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

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	1020035 **COMMUNITY**
NAME	Ramsey
ADDRESS	Ramsey Water Superintendent, 7550 Sunwood Drive, Ramsey, MN 55303

FACILITY (WELL) INFORMATION

NAME	Well #6
FACILITY ID	S07
UNIQUE WELL NO.	706840
COUNTY	Anoka

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

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

PWS ID / FACILITY ID	1020035 S07	**UNIQUE WELL NO.**	706840

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		

PWS ID / FACILITY ID	1020035 S07	UNIQUE WELL NO.	706840

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				
*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		
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		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		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		

PWS ID / FACILITY ID	1020035 S07	UNIQUE WELL NO.	706840

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				
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		
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							
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	120	Y
FPH	Frost proof yard hydrant	10	10		Y	90	N
GSP	Gas pipe	5/10	5/10		Y	50	N

* 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.

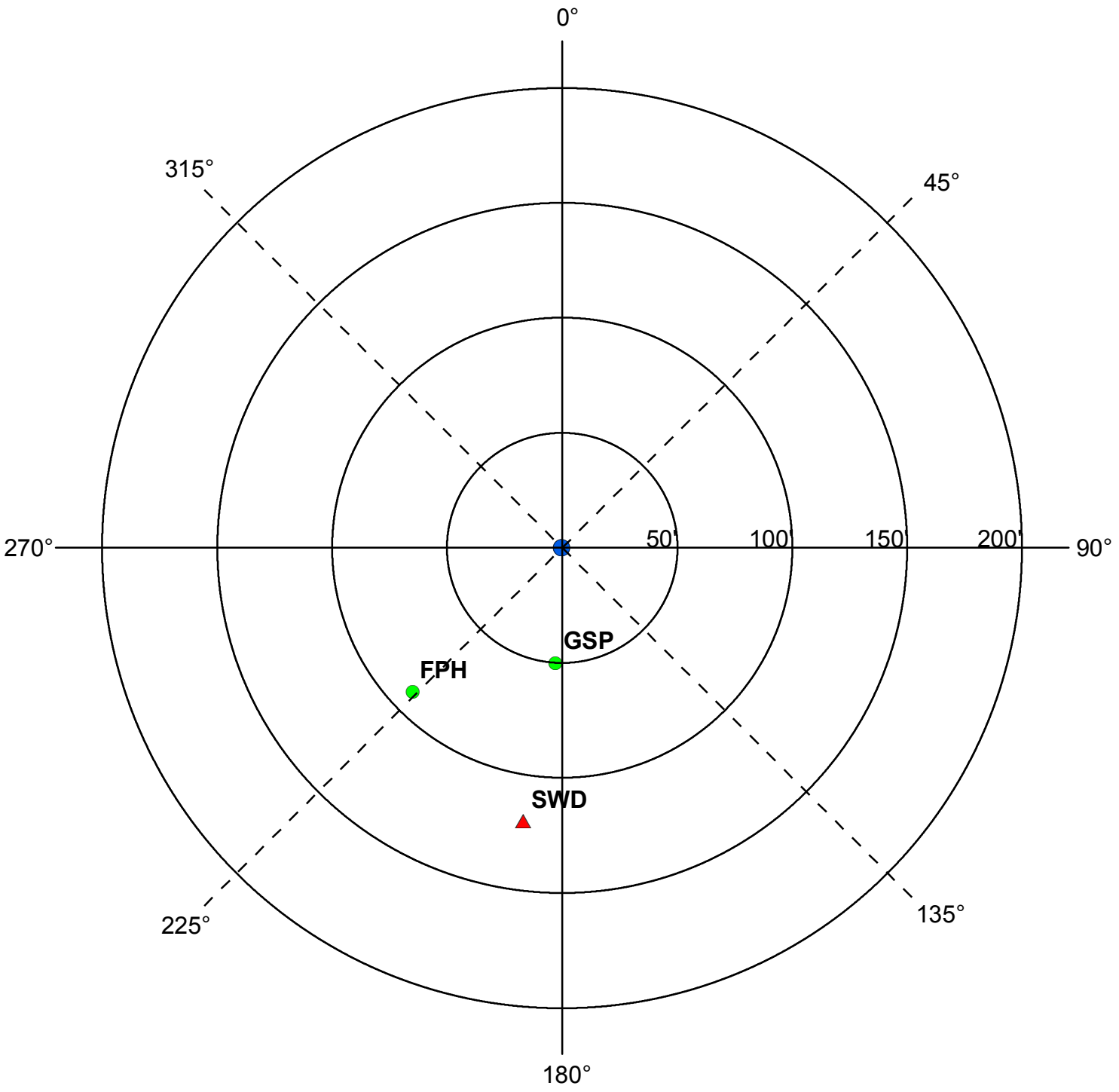
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; 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	1020035 S07	UNIQUE WELL NO.	706840

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	Freitag, John	DATE	6 - 12 - 2019

PWS ID / FACILITY ID	1020035 S07	UNIQUE WELL NO.	706840

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

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	1020035 **COMMUNITY**
NAME	Ramsey
ADDRESS	Ramsey Water Superintendent, 7550 Sunwood Drive, Ramsey, MN 55303

FACILITY (WELL) INFORMATION

NAME	Well #7
FACILITY ID	S08
UNIQUE WELL NO.	743832
COUNTY	Anoka

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

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

PWS ID / FACILITY ID	1020035 S08	**UNIQUE WELL NO.**	743832

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		

PWS ID / FACILITY ID	1020035 S08	UNIQUE WELL NO.	743832

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				
*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		
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		Y	180	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		Y	125	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		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		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		

PWS ID / FACILITY ID	1020035 S08	UNIQUE WELL NO.	743832

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				
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		
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							
BLD	Building (does not contain any actual or potential contaminant sources.)	3	3		Y	200	N**
BLD	Building (does not contain any actual or potential contaminant sources.)	3	3		Y	30	Y
FFH	Fire or flushing hydrant	10	N/A		Y	75	Y

* New potential contaminant source.

** This number is the estimated distance that this potential source is from this well even though it was identified during an inventory for an adjacent well.

[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.

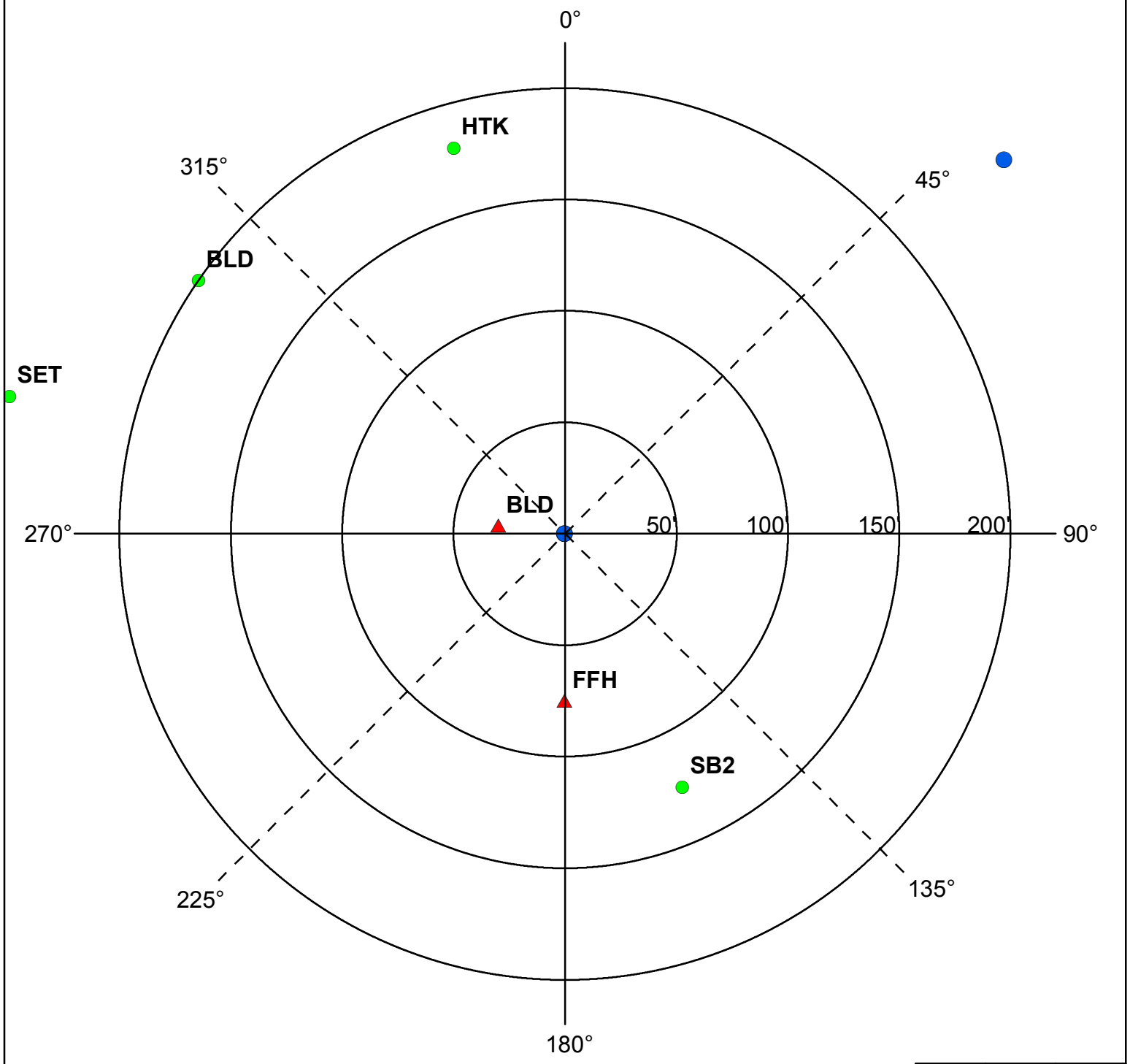
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; 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	1020035 S08	UNIQUE WELL NO.	743832

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	Freitag, John	DATE	6 - 12 - 2019

PWS ID / FACILITY ID	1020035 S08	UNIQUE WELL NO.	743832

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

COMMENTS

HTK = Two 1500 gallon tanks for drain water from firehouse that are emptied via VAC truck.BLD = building is pumphouse for wells 7 & 8.

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	1020035	**COMMUNITY**
NAME	Ramsey	
ADDRESS	Ramsey Water Superintendent, 7550 Sunwood Drive, Ramsey, MN 55303	

FACILITY (WELL) INFORMATION

NAME	Well #8
FACILITY ID	S09
UNIQUE WELL NO.	743833
COUNTY	Anoka

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

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

PWS ID / FACILITY ID	1020035 S09	**UNIQUE WELL NO.**	743833

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		

PWS ID / FACILITY ID	1020035 S09	UNIQUE WELL NO.	743833

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				
*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		
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		Y	60	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		Y	80	N
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		Y	90	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		Y	130	N
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		Y	102	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		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		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		

PWS ID / FACILITY ID	1020035 S09	UNIQUE WELL NO.	743833

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				
*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		
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							
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	75	Y
FFH	Fire or flushing hydrant	10	N/A		Y	60	N

* 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.

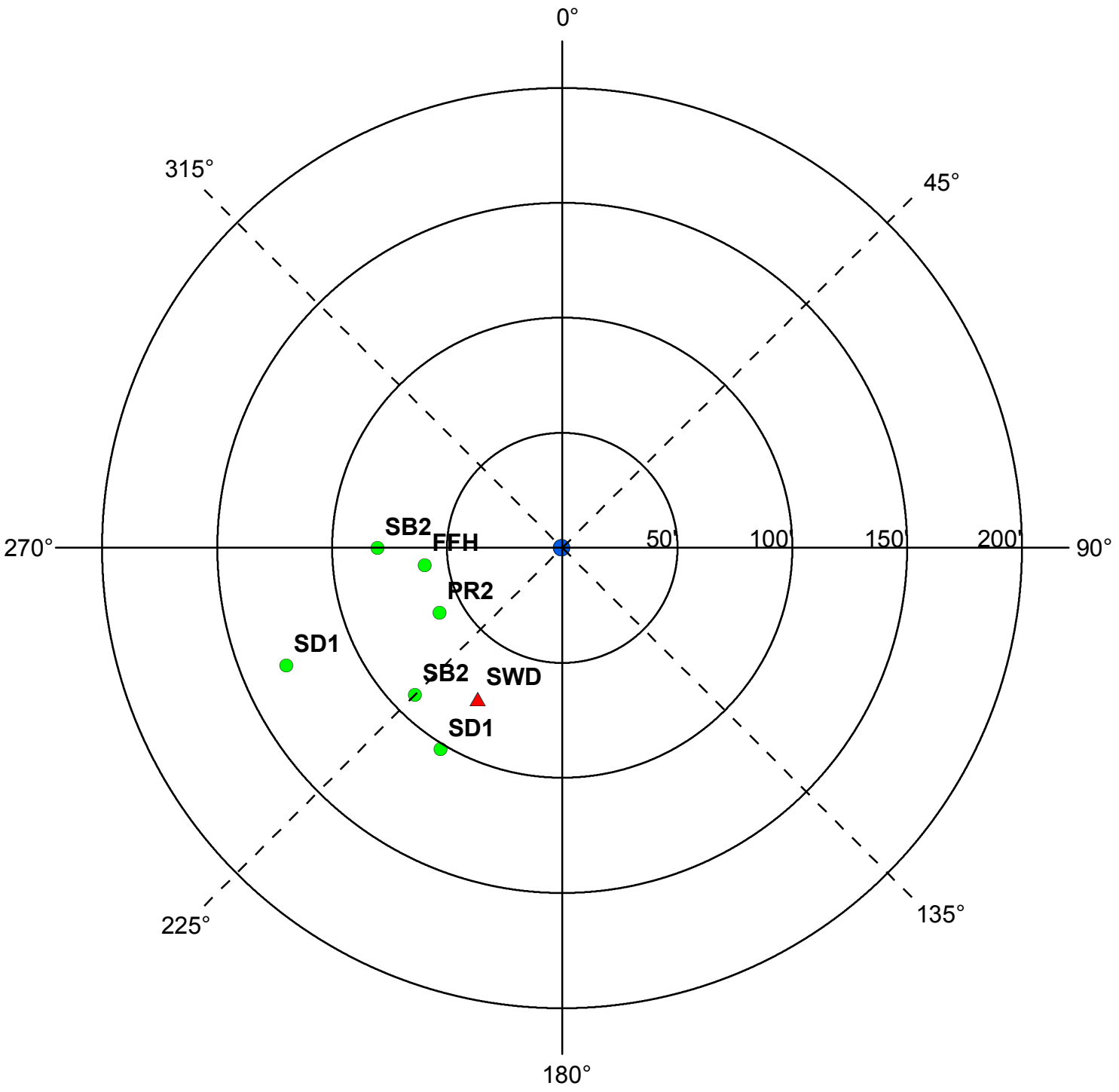
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; 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	1020035 S09	UNIQUE WELL NO.	743833

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	Freitag, John	DATE	6 - 12 - 2019

PWS ID / FACILITY ID	1020035 S09	UNIQUE WELL NO.	743833

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

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

Attachment C-2

Sealed Wells

Table C-2-1

Sealed Wells in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

PCSI ID	PID No.	Unique No.	Status	Use	Well Name	Well Location	City	Total Sealed Depth (Feet)	Date Completed/Sealed	Aquifer	PCS Code	Location Verified
1	363225210156	H152710	Sealed	Not Available	Anoka County Community Action	5361 189th Av	Ramsey	16	4/1/1999	Not Available	WEL	Not Attempted
2	273225240004	579465	Sealed	Not Available	Anoka Electric Cooperative	14601 Ramsey Bl	Ramsey	200	12/19/1996	Not Available	WEL	Not Attempted
3	273225220035	H71251	Sealed	Not Available	Anoka Electric Cooperative	Industry (& Ramsey Bl) Av	Ramsey	136	8/12/1995	Not Available	WEL	Not Attempted
4	Not Available	H109614	Sealed	Not Available	Anoka Electric Cooperative	14601 Ramsey Bl	Ramsey	79	10/2/1996	Not Available	WEL	Not Attempted
5	213225330011	H194181	Sealed	Not Available	Beach, Jerry	7830 149th La Nw	Ramsey	80	5/29/2002	Not Available	WEL	Not Attempted
6	213225330011	H194948	Sealed	Not Available	Beach, Jerry	7830 149th La Nw	Ramsey	16	5/29/2002	Not Available	WEL	Not Attempted
7	Not Available	672712	Sealed	Not Available	Bp Amoco	5195 142nd Av Nw	Ramsey	15	1/6/2003	Not Available	WEL	Not Attempted
8	Not Available	672713	Sealed	Not Available	Bp Amoco	5195 142nd Av Nw	Ramsey	15	1/6/2003	Not Available	WEL	Not Attempted
9	Not Available	672714	Sealed	Not Available	Bp Amoco	5195 142nd Av Nw	Ramsey	15	1/6/2003	Not Available	WEL	Not Attempted
10	Not Available	672715	Sealed	Not Available	Bp Amoco	5195 142nd Av Nw	Ramsey	35	1/6/2003	Not Available	WEL	Not Attempted
11	Not Available	672716	Sealed	Not Available	Bp Amoco	5195 142nd Av Nw	Ramsey	15	1/6/2003	Not Available	WEL	Not Attempted
12	Not Available	H180959	Sealed	Not Available	Bp Amoco	5145 142nd Av	Ramsey	12	10/11/2001	Not Available	WEL	Not Attempted
13	Not Available	H181291	Sealed	Not Available	Brigh Tkeys Development	14700 NW Ramsey Bl	Ramsey	156	10/14/2003	Not Available	WEL	Not Attempted
14	Not Available	611762	Sealed	Not Available	Bright Keys Development	14726 Ramsey Bl Nw	Ramsey	50	10/14/2003	Not Available	WEL	Not Attempted
15	Not Available	H181292	Sealed	Not Available	Bright Keys Development	14726 NW Ramsey Bl	Ramsey	41	10/16/2003	Not Available	WEL	Not Attempted
16	Not Available	242745	Sealed	Not Available	Brock, Jannie	15240 Kangaroo St Nw	Ramsey	71	06/07/1975	Not Available	WEL	Not Attempted
17	Not Available	H100254	Sealed	Not Available	Brooks Food Market	14550 Armstrong Rd	Ramsey	16	12/13/1995	Not Available	WEL	Not Attempted
18	Not Available	H100255	Sealed	Not Available	Brooks Food Market	14051 St. Francis Bl	Ramsey	12	12/13/1995	Not Available	WEL	Not Attempted
19	363225210213	578983	Sealed	Not Available	Bulow Inc.	5343 Industry Av Nw	Ramsey	86	11/2/2000	Not Available	WEL	Not Attempted
20	Not Available	H154749	Sealed	Not Available	Bulow Inc.	5323 Industry Av	Ramsey	22	11/2/2000	Not Available	WEL	Not Attempted
21	Not Available	H223487	Sealed	Not Available	Bunkers, John	14550 Armstrong Bl	Ramsey	20	6/22/2004	Not Available	WEL	Not Attempted
22	213225330001	H171742	Sealed	Not Available	Carlson, Cindy M.	7961 150th La Nw	Ramsey	152	1/17/2001	Not Available	WEL	Not Attempted
23	Not Available	H224089	Sealed	Not Available	Cazett, Jim	15052 Limonite St Nw	Ramsey	114	12/15/2004	Not Available	WEL	Not Attempted
24	Not Available	H139245	Sealed	Not Available	Chapman, Darell	5343 Industry Av	Ramsey	50	10/1/1998	Not Available	WEL	Not Attempted
25	Not Available	H193653	Sealed	Not Available	Cheney, Bill	15040 Kamacite St	Ramsey	63	4/18/2002	Not Available	WEL	Not Attempted
26	213225340026	H93615	Sealed	Not Available	De Rung, Neil	7730 149th La Nw	Ramsey	57	7/1/1987	Not Available	WEL	Not Attempted
27	Not Available	H206289	Sealed	Not Available	Delta Environmental Consultants Inc.	County Road 116 (& Ramsey Bl)	Ramsey	15	7/7/2003	Not Available	WEL	Not Attempted
28	253225440012	H139949	Sealed	Not Available	Deluca, Mike	14504 St. Francis Bl Nw	Ramsey	24	6/17/1998	Not Available	WEL	Not Attempted
29	283225430007	578977	Sealed	Public Supply/Non-Comm.-Transient	Diamonds On Ten	7550 10 Hy Nw	Ramsey	155	08/04/1998	QBAA	WEL	Not Attempted
30	363225120023	H289702	Sealed	Not Available	Eagen Oil	500 Bunker Lake Bl	Anoka	32	6/15/2010	Not Available	WEL	Not Attempted
31	363225120023	H289703	Sealed	Not Available	Eagen Oil	740 Bunker Lake Bl	Anoka	32	6/16/2010	Not Available	WEL	Not Attempted
32	Not Available	H44132	Sealed	Not Available	Eberlein, Steve	7900 150th La Nw	Ramsey	56	1/29/1994	Not Available	WEL	Not Attempted
33	363225210009	H287500	Sealed	Not Available	Egan, Bill	740 Bunker Lake Bl Nw	Anoka	12	4/28/2010	Not Available	WEL	Not Attempted
34	363225210009	H287496	Sealed	Not Available	Egan, Bill	500 Bunker Lake Bl Nw	Anoka	16	4/29/2010	Not Available	WEL	Not Attempted
35	213225340002	H114219	Sealed	Not Available	Elhardt, Mark	7751 150th La Nw	Ramsey	70	7/3/1997	Not Available	WEL	Not Attempted
36	223225330030	H265829	Sealed	Not Available	Ericson, Rick	6950 149th La Nw	Ramsey	55	8/1/2008	Not Available	WEL	Not Attempted
37	Not Available	H278639	Sealed	Not Available	Ez Auto	7751 Hwy 10 Nw	Ramsey	24	7/7/2009	Not Available	WEL	Not Attempted
38	213225320008	H32369	Sealed	Not Available	Falls, Tom	7920 152nd La	Ramsey	64	8/19/1993	Not Available	WEL	Not Attempted
39	Not Available	H16328	Sealed	Not Available	Fiore, Ed	7861 151st La Nw	Ramsey	45	11/8/1991	Not Available	WEL	Not Attempted
40	Not Available	H16329	Sealed	Not Available	Fiore, Ed	7861 151st La Nw	Ramsey	63	11/8/1991	Not Available	WEL	Not Attempted
41	Not Available	H113162	Sealed	Not Available	Fleming Companies	14001 St. Francis Bl	Ramsey	16	2/14/1997	Not Available	WEL	Not Attempted
42	293225140008	H109798	Sealed	Not Available	Fluor Daniel Telecom	147th (& Ferrett St Sw) Av	Ramsey	21	7/31/1996	Not Available	WEL	Not Attempted
43	213225330024	H179810	Sealed	Not Available	Frederick, Frank	7841 150th La Nw	Ramsey	220	11/1/2002	Not Available	WEL	Not Attempted
44	Not Available	H109612	Sealed	Not Available	Gilbertson, Dewitt/betty	15140 Chameleon St Nw	Ramsey	18	9/26/1996	Not Available	WEL	Not Attempted
45	Not Available	H213326	Sealed	Not Available	Hagen, Scott	8110 Hwy 10 Nw	Ramsey	16	8/14/2003	Not Available	WEL	Not Attempted
46	Not Available	H218027	Sealed	Not Available	Hagen, Scott	8110 Hwy 10	Ramsey	25	12/24/2003	Not Available	WEL	Not Attempted
47	293225140010	587802	Sealed	Industrial	Hauan, Dave	8014 146th Av Nw	Ramsey	120	08/21/1996	CTCG	WEL	Not Attempted
48	Not Available	H153898	Sealed	Not Available	Havisto, Al	15151 Iguana St Nw	Ramsey	64	6/14/1999	Not Available	WEL	Not Attempted
49	Not Available	H266214	Sealed	Not Available	Hills, Douglas	7443 Hwy 10 N	Ramsey	30	11/26/2007	Not Available	WEL	Not Attempted
50	Not Available	H266213	Sealed	Not Available	Hills, Douglas	7443 Hwy 10 N	Ramsey	27	11/26/2007	Not Available	WEL	Not Attempted
51	Not Available	H266244	Sealed	Not Available	Hills, Douglas	7443 Hwy 10 N	Ramsey	25	2/7/2008	Not Available	WEL	Not Attempted
52	Not Available	H23816	Sealed	Not Available	Hud Lawrence Moorhouse	15041 Bison St Nw	Ramsey	58	6/11/1992	Not Available	WEL	Not Attempted

Table C-2-1

Sealed Wells in the DWSMAs
City of Ramsey Part 2 WHPP Amendment

PCSI ID	PID No.	Unique No.	Status	Use	Well Name	Well Location	City	Total Sealed Depth (Feet)	Date Completed/Sealed	Aquifer	PCS Code	Location Verified
53	363225120023	H177370	Sealed	Not Available	Johnson, Wayne C.	Hwy 47 (& 116 Cr)	Anoka	158	4/17/2001	Not Available	WEL	Not Attempted
54	213225320002	H151351	Sealed	Not Available	Kerns, Paula	7941 152nd La Nw	Ramsey	56	2/15/1999	Not Available	WEL	Not Attempted
55	Not Available	H38658	Sealed	Not Available	Kissel, John/michell	14980 Peridot St Nw	Ramsey	53	7/12/1993	Not Available	WEL	Not Attempted
56	363225120023	H32389	Sealed	Not Available	Klein, Nellie	402 Industry Av	Ramsey	21	6/24/1993	Not Available	WEL	Not Attempted
57	Not Available	H175785	Sealed	Not Available	Kruger, Lonnie	15210 Kangaroo St	Ramsey	30	10/10/2001	Not Available	WEL	Not Attempted
58	253225440012	H23327	Sealed	Not Available	Lee, David	142nd Av Nw	Ramsey	216	8/14/1992	Not Available	WEL	Not Attempted
59	Not Available	H93618	Sealed	Not Available	Lund, Gary	14920 Bison St	Ramsey	61	10/28/1988	Not Available	WEL	Not Attempted
60	283225110191	H133344	Sealed	Not Available	Menkveld Companies	149th (& Ramsey Bl) Av Nw	Ramsey	23	2/12/1998	Not Available	WEL	Not Attempted
61	Not Available	H258646	Sealed	Not Available	Mn Dot	7443 Hwy 10	Ramsey	20	6/28/2007	Not Available	WEL	Not Attempted
62	Not Available	H217030	Sealed	Not Available	Morrisette, Rollin	7500 151st Av Nw	Ramsey	145	6/3/2004	Not Available	WEL	Not Attempted
63	Not Available	H140071	Sealed	Not Available	Nault, David	14940 Bison St Nw	Ramsey	62	10/19/1998	Not Available	WEL	Not Attempted
64	Not Available	H203369	Sealed	Not Available	Newberger, Michael	14940 Chameleon St Nw	Ramsey	68	12/18/2002	Not Available	WEL	Not Attempted
65	Not Available	H4109	Sealed	Not Available	Noon's Rv Center	7405 Hwy 10 Nw	Ramsey	16	10/10/1988	Not Available	WEL	Not Attempted
66	Not Available	455267	Sealed	Domestic	Nordvik, Don	8020 147th Av Nw	Ramsey	279	11/23/1988	CTCW	WEL	Not Attempted
67	293225140009	615612	Sealed	Industrial	Nordvik, Don	8024 147th Av Nw	Ramsey	129	11/03/1998	CTCG	WEL	Not Attempted
68	Not Available	H0300166	Sealed	Not Available	Odenbrett, Preston	15040 Willemite St NW	Ramsey	42	6/11/2012	Not Available	WEL	Not Attempted
69	293225140012	171076	Sealed	Not Available	Ouellette, Tony	14550 Armstrong Bl	Ramsey	275	6/20/2001	Not Available	WEL	Not Attempted
70	Not Available	580349	Sealed	Public Supply/Non-Comm.-Transient	Ouellette, Tony & Jean	14590 Armstrong Bl Nw	Ramsey	50	02/14/2000	QBAA	WEL	Not Attempted
71	Not Available	H14369	Sealed	Not Available	Pahl, Martin	14921 Bison St Nw	Ramsey	56	9/13/1991	Not Available	WEL	Not Attempted
72	223225330024	H267426	Sealed	Not Available	Peltzer, Arnold	15035 Ramsey Bl	Ramsey	76	9/15/2008	Not Available	WEL	Not Attempted
73	213225330009	H253374	Sealed	Not Available	Powers, Herb	7910 149th La Nw	Ramsey	56	12/11/2006	Not Available	WEL	Not Attempted
74	293225110011	H279849	Sealed	Not Available	Premier Real Estate	8440 155th La	Ramsey	21	6/26/2009	Not Available	WEL	Not Attempted
75	293225110011	H281604	Sealed	Not Available	Premium Real Estate	8440 155th La Nw	Ramsey	21	6/26/2009	Not Available	WEL	Not Attempted
76	293225110011	H281605	Sealed	Not Available	Premium Real Estate	8440 155th La Nw	Ramsey	21	6/26/2009	Not Available	WEL	Not Attempted
77	Not Available	580302	Sealed	Not Available	Ramsey, City Of	7301 Industry Av Nw	Ramsey	365	11/25/2003	Not Available	WEL	Not Attempted
78	Not Available	593666	Sealed	Not Available	Ramsey, City Of	County Road 116 (7500 Block)	Ramsey	265	12/6/2000	Not Available	WEL	Not Attempted
79	283225240016	621372	Sealed	Not Available	Ramsey, City Of	Rhinestone Av	Ramsey	3	5/25/2005	Not Available	WEL	Not Attempted
80	283225230018	706813	Sealed	Not Available	Ramsey, City Of	Hwy 10 And Armstrong Bl Nw	Ramsey	378	4/19/2006	Not Available	WEL	Not Attempted
81	Not Available	H198749	Sealed	Not Available	Ramsey, City Of	14346 Nowthen Bl	Ramsey	75	10/1/2002	Not Available	WEL	Not Attempted
82	Not Available	H222521	Sealed	Not Available	Ramsey, City Of	14550 Ramsey Bl Nw	Ramsey	60	5/13/2004	Not Available	WEL	Not Attempted
83	283225310005	469000	Sealed	Not Available	Ramsey, City Of	7665 10 Hy	Ramsey	167	10/19/2010	Not Available	WEL	Not Attempted
84	283225130075	H0291202	Sealed	Not Available	Ramsey, City Of	Ramsey	Ramsey	30	1/5/2012	Not Available	WEL	Not Attempted
85	283225230016	H0297202	Sealed	Not Available	Ramsey, City Of	Not Available	Ramsey	30	1/15/2012	Not Available	WEL	Not Attempted
86	283225119901	H0292800	Sealed	Not Available	Ramsey, City Of	14650 Ramsey Bl	Ramsey	170	6/28/2011	Not Available	WEL	Not Attempted
87	283225130007	768958	Sealed	Not Available	Ramsey, City Of	E Ramsey Pk	Ramsey	38	7/26/2010	Not Available	WEL	Not Attempted
88	283225130007	H286770	Sealed	Not Available	Ramsey, City Of	7401 E Ramsey Pk	Ramsey	35	6/14/2010	Not Available	WEL	Not Attempted
89	Not Available	H247689	Sealed	Not Available	Renner, Raymond	7065 148th La Nw	Ramsey	24	7/26/2006	Not Available	WEL	Not Attempted
90	Not Available	H248892	Sealed	Not Available	Rosenberg, Cathy	15042 Limonite St Nw	Ramsey	76	8/14/2008	Not Available	WEL	Not Attempted
91	Not Available	H224070	Sealed	Not Available	Schmitz, Paul	14950 Kamacite St	Ramsey	63	11/1/2004	Not Available	WEL	Not Attempted
92	203225420033	H21864	Sealed	Not Available	Schroedl, Laurie	15211 Iguana St Nw	Ramsey	227	7/3/1992	Not Available	WEL	Not Attempted
93	Not Available	H145246	Sealed	Not Available	Schwagerl, Tom	15150 Iguana St	Ramsey	67	6/24/1999	Not Available	WEL	Not Attempted
94	213225320012	H263295	Sealed	Not Available	Scott, Kyle	7841 151st La	Ramsey	61	10/30/2008	Not Available	WEL	Not Attempted
95	Not Available	H171703	Sealed	Not Available	Shefveland, Jim	7600 150th La Nw	Ramsey	49	8/22/2000	Not Available	WEL	Not Attempted
96	Not Available	H169447	Sealed	Not Available	Snyder, Harlan	15210 Jackal St Nw	Ramsey	64	6/28/2000	Not Available	WEL	Not Attempted
97	Not Available	H59290	Sealed	Not Available	Tom Thumb Food Market, Inc.	14911 Ramsey Bl Nw	Ramsey	152	6/6/1995	Not Available	WEL	Not Attempted
98	Not Available	H278090	Sealed	Not Available	Ustimchuk, Leon	15001 Zeolite St Nw	Ramsey	65	6/18/2009	Not Available	WEL	Not Attempted
99	213225330012	H241521	Sealed	Not Available	Vincent, Ed	7810 149th La Nw	Ramsey	51	9/27/2006	Not Available	WEL	Not Attempted
100	Not Available	H265347	Sealed	Not Available	Wochnick, Richard	14941 Chameleon St Nw	Ramsey	59	10/18/2007	Not Available	WEL	Not Attempted
101	213225330004	H16327	Sealed	Not Available	Wolfbauer, Frank	7921 150th La Nw	Ramsey	61	11/8/1991	Not Available	WEL	Not Attempted
102	Not Available	H278110	Sealed	Not Available	Wright, Mike	14921 Chameleon St Nw	Ramsey	150	7/22/2009	Not Available	WEL	Not Attempted

Sealed Well

Ramsey DWSMA

Municipal Boundary

Aquifer Vulnerability

Moderate

2 - Sealed Well Location PCSI ID (PCSI ID refers to Table X Sealed Wells in the DWSMAs)

0 1,000 2,000

Feet

SEALED WELLS
IN THE DWMSAs
Part 2 WHPP Amendment
City of Ramsey
Anoka County, MN

FIGURE C-2-1

Ramsey

Andover

Anoka

Dayton

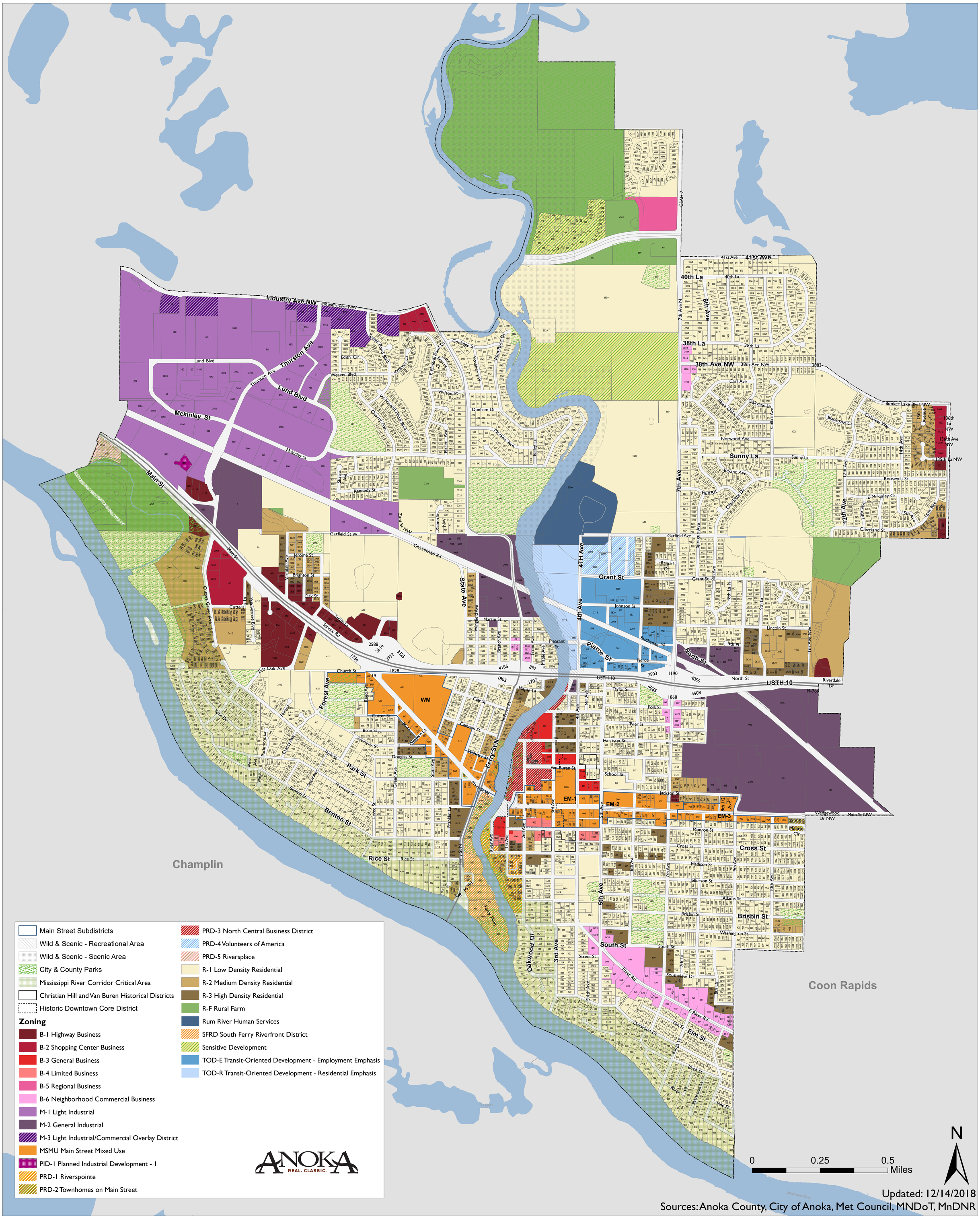
Champlin

Barr Footer: ArcGIS 10.6.1, 2019-07-03 11:35 File: I:\Projects\23\02\1081\Maps\Reports\WHPPII_2019\Fig C-2-1 Sealed Wells in the DWSMAs.mxd User: JCG

Attachment C-3

Other Maps

City of Anoka Zoning Map (Official)



- Main Street Subdistricts
- Wild & Scenic - Recreational Area
- Wild & Scenic - Scenic Area
- City & County Parks
- Mississippi River Corridor Critical Area
- Christian Hill and Van Buren Historical Districts
- Historic Downtown Core District

Zoning

- B-1 Highway Business
- B-2 Shopping Center Business
- B-3 General Business
- B-4 Limited Business
- B-5 Regional Business
- B-6 Neighborhood Commercial Business
- M-1 Light Industrial
- M-2 General Industrial
- M-3 Light Industrial/Commercial Overlay District
- MSMU Main Street Mixed Use
- PID-1 Planned Industrial Development - 1
- PRD-1 Riverspointe
- PRD-2 Townhomes on Main Street
- PRD-3 North Central Business District
- PRD-4 Volunteers of America
- PRD-5 Riversplace
- R-1 Low Density Residential
- R-2 Medium Density Residential
- R-3 High Density Residential
- R-F Rural Farm
- Rum River Human Services
- SFRD South Ferry Riverfront District
- Sensitive Development
- TOD-E Transit-Oriented Development - Employment Emphasis
- TOD-R Transit-Oriented Development - Residential Emphasis

ANOKA
REAL. CLASSIC.

Updated: 12/14/2018

Sources: Anoka County, City of Anoka, Met Council, MNDoT, MnDNR

Appendix D

Water Quality Information

Ramsey

2018 DRINKING WATER REPORT

Making Safe Drinking Water

Your drinking water comes from a groundwater source: eight wells ranging from 316 to 390 feet deep, that draw water from the Tunnel City Group and Tunnel City-Wonewoc aquifers.

Ramsey works hard to provide you with safe and reliable drinking water that meets federal and state water quality requirements. The purpose of this report is to provide you with information on your drinking water and how to protect our precious water resources.

Contact [Insert owner/operator/designee name], [Insert title], at [Insert phone number and email] if you have questions about Ramsey's drinking water. You can also ask for information about how you can take part in decisions that may affect water quality.

The U.S. Environmental Protection Agency sets safe drinking water standards. These standards limit the amounts of specific contaminants allowed in drinking water. This ensures that tap water is safe to drink for most people. The U.S. Food and Drug Administration regulates the amount of certain contaminants in bottled water. Bottled water must provide the same public health protection as public tap water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Ramsey Monitoring Results

This report contains our monitoring results from January 1 to December 31, 2018.

We work with the Minnesota Department of Health to test drinking water for more than 100 contaminants. It is not unusual to detect contaminants in small amounts. No water supply is ever completely free of contaminants. Drinking water standards protect Minnesotans from substances that may be harmful to their health.

Learn more by visiting the Minnesota Department of Health's webpage Basics of Monitoring and Testing of Drinking Water in Minnesota (https://www.health.state.mn.us/communities/environment/water/factsheet/sampling.html).

How to Read the Water Quality Data Tables

The tables below show the contaminants we found last year or the most recent time we sampled for that contaminant. They also show the levels of those contaminants and the Environmental Protection Agency's limits. Substances that we tested for but did not find are not included in the tables.

We sample for some contaminants less than once a year because their levels in water are not expected to change from year to year. If we found any of these contaminants the last time we sampled for them, we included them in the tables below with the detection date.

We may have done additional monitoring for contaminants that are not included in the Safe Drinking Water Act. To request a copy of these results, call the Minnesota Department of Health at 651-201-4700 or 1-800-818-9318 between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Definitions

- **AL (Action Level)**: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **EPA:** Environmental Protection Agency
- **MCL (Maximum contaminant level)**: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **MCLG (Maximum contaminant level goal)**: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Level 1 Assessment**: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- **Level 2 Assessment**: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.
- **MRDL (Maximum residual disinfectant level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG (Maximum residual disinfectant level goal)**: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **NA (Not applicable)**: Does not apply.
- **NTU (Nephelometric Turbidity Units)**: A measure of the cloudiness of the water (turbidity).
- **pCi/l (picocuries per liter)**: A measure of radioactivity.
- **ppb (parts per billion)**: One part per billion in water is like one drop in one billion drops of water, or about one drop in a swimming pool. ppb is the same as micrograms per liter (µg/l).
- **ppm (parts per million)**: One part per million is like one drop in one million drops of water, or about one cup in a swimming pool. ppm is the same as milligrams per liter (mg/l).
- **PWSID**: Public water system identification.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.
- **Variances and Exemptions**: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Monitoring Results – Regulated Substances

LEAD AND COPPER – Tested at customer taps.

Contaminant (Date, if sampled in previous year)	EPA's Action Level	EPA's Ideal Goal (MCLG)	90% of Results Were Less Than	Number of Homes with High Levels	Violation	Typical Sources
Copper (06/21/17)	90% of homes less than 1.3 ppm	0 ppm	0.82 ppm	0 out of 30	NO	Corrosion of household plumbing.
Lead (06/21/17)	90% of homes less than 15 ppb	0 ppb	1.9 ppb	1 out of 30	NO	Corrosion of household plumbing.

BACTERIA – Tested in the distribution system.

Contaminant	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Number of Test Results with E. coli	Number of Treatment Technique Exceedances	Violation	Typical Sources
E. coli	One positive sample	0	1	0	NO	Human and animal fecal waste.

INORGANIC & ORGANIC CONTAMINANTS – Tested in drinking water.						
Contaminant (Date, if sampled in previous year)	**EPA's Limit** (MCL)	**EPA's Ideal Goal** (MCLG)	**Highest Average or Highest Single Test Result**	**Range of Detected Test Results**	**Violation**	**Typical Sources**
Barium	2 ppm	2 ppm	0.11 ppm	0.0694 - 0.1110 ppm	NO	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposit.
Arsenic	10.4 ppb	0 ppb	1.65 ppb	1.32 - 1.65 ppb	NO	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
2,4-D	70 ppb	70 ppb	0.03 ppb	0.00 - 0.12 ppb	NO	Runoff from herbicide used on row crops.
Combined Radium	5.4 pCi/l	0 pCi/l	2.2 pCi/l	N/A	NO	Erosion of natural deposits.

CONTAMINANTS RELATED TO DISINFECTION – Tested in drinking water.

Substance (Date, if sampled in previous year)	**EPA's Limit** (MCL or MRDL)	**EPA's Ideal Goal** (MCLG or MRDLG)	**Highest Average or Highest Single Test Result**	**Range of Detected Test Results**	**Violation**	**Typical Sources**
Total Trihalomethanes (TTHMs)	80 ppb	N/A	1.9 ppb	1.40 - 1.90 ppb	NO	By-product of drinking water disinfection.
Total Haloacetic Acids (HAA)	60 ppb	N/A	2.05 ppb	0.48 – 1.48 ppb	NO	By-product of drinking water disinfection.
Total Chlorine	4.0 ppm	4.0 ppm	1.06 ppm	0.48 - 1.48 ppm	NO	Water additive used to control microbes.

Total HAA refers to HAA5

OTHER SUBSTANCES – Tested in drinking water.

Substance (Date, if sampled in previous year)	**EPA's Limit** (MCL)	**EPA's Ideal Goal** (MCLG)	**Highest Average or Highest Single Test Result**	**Range of Detected Test Results**	**Violation**	**Typical Sources**
Fluoride	4.0 ppm	4.0 ppm	0.73 ppm	0.61 - 0.83 ppm	NO	Erosion of natural deposits; Water additive to promote strong teeth.

Potential Health Effects and Corrective Actions (If Applicable)

E. coli: E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.

Lead: Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Total coliform bacteria: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments. 1 sample out of 180 samples collected in 2018 tested positive for E-coli, after detection five additional tests were collected and analyzed from the failed site. All additional follow up samples tested negative. Collection or lab procedures were most likely the reason for the positive test result.

Monitoring Results – Unregulated Substances

In addition to testing drinking water for contaminants regulated under the Safe Drinking Water Act, we sometimes also monitor for contaminants that are not regulated. Unregulated contaminants do not have legal limits for drinking water.

Detection alone of a regulated or unregulated contaminant should not cause concern. The meaning of a detection should be determined considering current health effects information. We are often still learning about the health effects, so this information can change over time.

The following table shows the unregulated contaminants we detected last year, as well as human-health based guidance values for comparison, where available. The comparison values are based only on potential health impacts and do not consider our ability to measure contaminants at very low concentrations or the cost and technology of prevention and/or treatment. They may be set at levels that are costly, challenging, or impossible for water systems to meet (for example, large-scale treatment technology may not exist for a given contaminant).

A person drinking water with a contaminant at or below the comparison value would be at little or no risk for harmful health effects. If the level of a contaminant is above the comparison value, people of a certain age or with special health conditions - like a fetus, infants, children, elderly, and people with impaired immunity – may need to take extra precautions. Because these contaminants are unregulated, EPA and MDH require no particular action based on detection of an unregulated contaminant. We are notifying you of the unregulated contaminants we have detected as a public education opportunity.

- More information is available on MDH's A-Z List of Contaminants in Water (https://www.health.state.mn.us/communities/environment/water/contaminants/index.html) and Fourth Unregulated Contaminant Monitoring Rule (UCMR 4) (https://www.health.state.mn.us/communities/environment/water/com/ucmr4.html).

UNREGULATED CONTAMINANTS – Tested in drinking water.

Contaminant	Comparison Value	Highest Average Result or Highest Single Test Result	Range of Detected Test Results
Manganese	100 ppb	296 ppb	20.70 - 365.00 ppb
Sodium*	20 ppm	10.5 ppm	N/A
Sulfate	500 ppm	14.2 ppm	N/A
Group of 6 Haloacetic Acids (HAA6Br)	N/A	0.37 ppb	0.00 - 0.56 ppb
Group of 9 Haloacetic Acids (HAA9)	N/A	1.49 ppb	0.68 - 2.03 ppb

*Note that home water softening can increase the level of sodium in your water.

Some People Are More Vulnerable to Contaminants in Drinking Water

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. The developing fetus and therefore pregnant women may also be more vulnerable to contaminants in drinking water. These people or their caregivers should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Learn More about Your Drinking Water

Drinking Water Sources

Minnesota's primary drinking water sources are groundwater and surface water. Groundwater is the water found in aquifers beneath the surface of the land. Groundwater supplies 75 percent of Minnesota's drinking water. Surface water is the water in lakes, rivers, and streams above the surface of the land. Surface water supplies 25 percent of Minnesota's drinking water.

Contaminants can get in drinking water sources from the natural environment and from people's daily activities. There are five main types of contaminants in drinking water sources.

- **Microbial contaminants,** such as viruses, bacteria, and parasites. Sources include sewage treatment plants, septic systems, agricultural livestock operations, pets, and wildlife.
- **Inorganic contaminants** include salts and metals from natural sources (e.g. rock and soil), oil and gas production, mining and farming operations, urban stormwater runoff, and wastewater discharges.
- **Pesticides and herbicides** are chemicals used to reduce or kill unwanted plants and pests. Sources include agriculture, urban stormwater runoff, and commercial and residential properties.
- **Organic chemical contaminants** include synthetic and volatile organic compounds. Sources include industrial processes and petroleum production, gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants** such as radium, thorium, and uranium isotopes come from natural sources (e.g. radon gas from soils and rock), mining operations, and oil and gas production.

The Minnesota Department of Health provides information about your drinking water source(s) in a source water assessment, including:

- How Ramsey is protecting your drinking water source(s);
- Nearby threats to your drinking water sources;
- How easily water and pollution can move from the surface of the land into drinking water sources, based on natural geology and the way wells are constructed.

Find your source water assessment at Source Water Assessments (https://www.health.state.mn.us/communities/environment/water/swp/swa) or call 651-201-4700 or 1-800-818-9318 between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Lead in Drinking Water

You may be in contact with lead through paint, water, dust, soil, food, hobbies, or your job. Coming in contact with lead can cause serious health problems for everyone. There is no safe level of lead. Babies, children under six years, and pregnant women are at the highest risk.

Lead is rarely in a drinking water source, but it can get in your drinking water as it passes through lead service lines and your household plumbing system. Ramsey provides high quality drinking water, but it cannot control the plumbing materials used in private buildings.

Read below to learn how you can protect yourself from lead in drinking water.

1. **Let the water run** for 30-60 seconds before using it for drinking or cooking if the water has not been turned on in over six hours. If you have a lead service line, you may need to let the water run longer. A service line is the underground pipe that brings water from the main water pipe under the street to your home.
    - You can find out if you have a lead service line by contacting your public water system, or you can check by following the steps at: https://www.mprnews.org/story/2016/06/24/npr-find-lead-pipes-in-your-home
    - The only way to know if lead has been reduced by letting it run is to check with a test. If letting the water run does not reduce lead, consider other options to reduce your exposure.
2. **Use cold water** for drinking, making food, and making baby formula. Hot water releases more lead from pipes than cold water.
3. **Test your water.** In most cases, letting the water run and using cold water for drinking and cooking should keep lead levels low in your drinking water. If you are still concerned about lead, arrange with a laboratory to test your tap water. Testing your water is important if young children or pregnant women drink your tap water.
    - Contact a Minnesota Department of Health accredited laboratory to get a sample container and instructions on how to submit a sample:
      Environmental Laboratory Accreditation Program
      (https://eldo.web.health.state.mn.us/public/accreditedlabs/labsearch.seam)
      The Minnesota Department of Health can help you understand your test results.
4. **Treat your water** if a test shows your water has high levels of lead after you let the water run.
    - Read about water treatment units:
      Point-of-Use Water Treatment Units for Lead Reduction
      (https://www.health.state.mn.us/communities/environment/water/factsheet/poulead.html)

Learn more:

- Visit Lead in Drinking Water
  (https://www.health.state.mn.us/communities/environment/water/contaminants/lead.html)
- Visit Basic Information about Lead in Drinking Water (http://www.epa.gov/safewater/lead)
- Call the EPA Safe Drinking Water Hotline at 1-800-426-4791.To learn about how to reduce your contact with lead from sources other than your drinking water, visit Lead Poisoning Prevention: Common Sources (https://www.health.state.mn.us/communities/environment/lead/sources.html).

Appendix E

Written Comments from Local Units of Government

NOTE TO REVIEWERS: WRITTEN COMMENTS RECEIVED FROM LGUS, IF ANY, WILL BE ADDED TO THIS APPENDIX FOR THE FINAL DOCUMENT

Appendix F

Wellhead Protection Program Evaluation Template

WHP PLAN AMENDMENT EVALUATION
What have you accomplished?

for

City of Ramsey
PWS ID #1020035
Date

Date of Initial Plan Approval:

Evaluation Completed By:

Copies Presented or Sent To:

☐ Minnesota Department of Health
Attn: Trudi Witkowski
Environmental Health Division
Source Water Protection Unit
P.O. Box 64975
St. Paul, MN 55164-0975
Trudi.witkowski@state.mn.us

☐MDH or MRWA Planner

☐Wellhead Protection File

☐City Council/Governing Body

Note: delete the italicized notes text after completing a draft of this document.

A. Implementation of Wellhead Protection Management Strategies.
(Note: table should include all WHP measures)

WHP Measure	Implemented? Y or N	Comments

B. Additional Financial Resources
(Note: Include a summary of SWP Grants)

Have you taken advantage of local, state, or federal financial resources (such as Well Sealing Grants, SWP Grants, Clean Water Fund Grants or LCCMR funds) to help you implement your wellhead protection plan?

YES ☐ NO ☐

SWP Grants History:

C. Status of Inner Wellhead Management Zone Work (IWMZ Work)
Date of the most recent IWMZ inventory for each well in the public water supply system:

Does the IWMZ need to be updated for the amendment? YES☐ NO☐

D. Sealing Old Municipal Wells

Have you sealed any old municipal public water supply wells? YES ☐ NO ☐

Comments:

E. Water Quality Sampling and Data Collection

Have you or MDH sampled the quality of the groundwater in your DWSMA? YES ☐ NO ☐
Comments:

Have you collected additional data to improve the wellhead protection area delineation or assess vulnerability (e.g. tritium, isotopes, groundwater elevations)? YES☐ NO☐

Comments:

Have you implemented a monitoring plan for water quality developed in cooperation with MDH?

YES☐ NO☐

Comments:

F. Potential Contaminant Source Inventory (PCSI)

Have you maintained or updated your PCSI? YES ☐ NO ☐

Have you identified new PCS in your DWSMA and included them in your PCSI? ☐YES ☐NO

Comments:

G. Using SDWA Monitoring Data

Are there any changes in your SDWA compliance monitoring results? YES ☐ NO ☐

Comments:

H. Contingency Plan

Have you had to implement any part of your Contingency Plan? YES☐ NO☐

Comments:

Appendix G

Water Supply Plan Documentation

Minnesota Department of Natural Resources

Central Region Waters - 1200 Warner Road, St. Paul, MN 55106-6793
Telephone: (651) 259-5845 Fax: (651) 772-7977

December 12, 2008

Brian Olsen, Director of Public Works
City of Ramsey
7550 Sunwood Drive
Ramsey, MN 55303

Subject: CITY OF RAMSEY MUNICIPAL WATER SUPPLY–FINAL APPROVAL

Dear Mr. Olsen:

We are in receipt of your revised Water Supply Plan. This revised Plan contains most of the changes requested in Kate Drewry's July 24, 2008 letter. We appreciate the City's commitment to explore additional conservation measures to reduce per capita and peak demand levels. The Plan also commits the City to additional monitoring at the Lake Itasca well nest and surface level gage, along with the well nest in the primary wellfield. Monitoring data is to be submitted to the DNR on a quarterly basis in an Excel spreadsheet (template to be used for this reporting will be forwarded to you electronically).

With these changes and commitments, I am pleased to advise you that in accordance with Minnesota Statutes, Section 103G.291, Subdivision 3, and on behalf of the Commissioner of Natural Resources, your Plan is hereby approved. **This approval is effective upon the Department's receipt of a completed copy of the attached "Certification of Adoption" form.** Please return the completed and signed form to my office.

The DNR and Metropolitan Council encourage the City to continue strengthening and expanding its conservation programs to reduce demand. In particular, we urge you review the rate structure and water-use metrics annually, and if per capita trends are not declining, consider increasing rates and/or restructuring rate tiers and/or moving to a monthly billing system.

Thank you for your efforts in planning for the future of the City of Ramsey's 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 planning or appropriation permit, please contact Area Hydrologist Kate Drewry at 651-259-5753.

Your efforts on the Plan and your commitment to water conservation are very much appreciated.

Sincerely,

Dale E. Homuth
Regional Hydrologist

Enclosure

c: Paul Saffert, P.E., Bolton and Menk, Inc
Bart Biernat, Anoka County
Chris Elvrum, Metropolitan Council
Chris Lord, ACD
Laurel Reeves, Water Appropriation Program
Central Office Permits and SWUDS
Kate Drewry, Area Hydrologist

City of RAMSEY

7550 Sunwood Drive NW • Ramsey, Minnesota 55303
City Hall: 763-427-1410 • Fax: 763-427-5543
www.ci.ramsey.mn.us

April 1, 2009

Mr. Dale Holmuth
Regional Hydrologist
Department of Natural Resources Waters
1200 Warner Road
St. Paul, MN 55106

City of Ramsey Municipal Water supply – Final Plan Approval

Dear Mr. Holmuth,

Please find enclosed an executed copy of the "Certificate of Adoption Water Supply Plan". I am also enclosing a copy of the adopting resolution passed by City Council; on October 28th 2008. Please contact me if any thing further is required in this matter.

Sincerely,

Steven Jankowski
City Engineer

CERTIFICATION OF ADOPTION
WATER SUPPLY PLAN

City or Water System Name: City of Ramsey Municipal Water Utility

Name of Person Authorized to Sign
Certification on Behalf of the System: Steven Jankowski

Title: City Engineer

Address: 7550 Sunwood Drive, Ramsey MN 55303

Telephone: 763-433-9826 Fax: 763-433-9898

E-mail: SJankowski@ci.ramsey.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: Date: 4/1/09

Fax (651/772-7977) or mail this certification to: **DNR Waters**
1200 Warner Road
St. Paul, MN 55106

Or, email to: dale.homuth@dnr.state.mn.us

RECEIVED
APR 03 2009
DNR
Waters

Councilmember Elvig introduced the following resolution and moved for its adoption:

RESOLUTION #08-10-212A

RESOLUTION ADOPTING THE 2008 COMPREHENSIVE SURFACE WATER MANAGEMENT PLAN; IMPROVEMENT PROJECT #07-24

WHEREAS, the City of Ramsey is in the process of updating their Comprehensive Plan, and;

WHEREAS, a significant component of the Comprehensive Plan is a Surface Water Management Plan (SWMP), and;

WHEREAS, the SWMP has been reviewed by the Lower Rum River Water Management Organization and the Metropolitan Council, and;

WHEREAS, Comments from these reviewing agencies have been incorporated into the final SWMP.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA:

1) That the Ramsey City Council hereby adopts the Comprehensive Surface Water Management Plan

2) The SWMP shall be incorporated into the City's Comprehensive Plan and implemented by City staff.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember Strommen, and upon vote being taken thereon, the following voted in favor thereof:

Councilmember Elvig
Councilmember Strommen
Councilmember Dehen
Councilmember Jeffrey
Councilmember Look
Councilmember Olson

and the following voted against the same:

none

and the following abstained:

none

and the following were absent:

Mayor Gamec

whereupon said Resolution was declared duly passed and adopted by the Ramsey City Council this 28th day of October 2008.

Mayor

ATTEST:

City Clerk

Part 2. Emergency Preparedness Procedures

The emergency preparedness procedures outlined in this plan are intended to comply with the contingency plan provisions required by MDH in the WHP and SWP. Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failings, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan. Municipalities that already have written procedures dealing with water emergencies should review the following information and update existing procedures to address these water supply protection measures.

A. Federal Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act, (Public Law 107-188, Title IV- Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan.

Do you have a federal emergency response plan? Yes ☒ No ☐

If yes, what was the date it was certified? May 8, 2008

Complete Table 15 by inserting the noted information regarding your completed Federal Emergency Response Plan.

Table 15. Emergency Preparedness Plan contact information

Emergency Response Plan Role	Contact Person	Contact Phone Number	Contact Email
Emergency Response Lead	MATT KOHNER	763 433-9859	MKOHNER@CI.RAMSEY.MN.US
Alternate Emergency Response Lead	JOHN NELSON	763 286-0296	JNELSON@CI.RAMSEY.MN.US

B. Operational Contingency Plan

All utilities should have a written operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance.

Do you have a written operational contingency plan? Yes ☒ No ☐

At a minimum, a water supplier should prepare and maintain an emergency contact list of contractors and suppliers.

C. Emergency Response Procedures

Water suppliers must meet the requirements of MN Rules 4720.5280 . Accordingly, the Minnesota Department of Natural Resources (DNR) requires public water suppliers serving more than 1,000 people to submit Emergency and Conservation Plans. Water emergency and

conservation plans that have been approved by the DNR, under provisions of Minnesota Statute 186 and Minnesota Rules, part 6115.0770, will be considered equivalent to an approved WHP contingency plan.

Emergency Telephone List

Prepare and attach a list of emergency contacts, including the MN Duty Officer (1-800-422-0798), as **Appendix 5**. A template is available at www.mndnr.gov/watersupplyplans.
The list should include key utility and community personnel, contacts in adjacent water suppliers, and appropriate local, state and federal emergency contacts. Please be sure to verify and update the contacts on the emergency telephone list and date it. Thereafter, update on a regular basis (once a year is recommended). In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the Emergency Manager for that community. Responsibilities and services for each contact should be defined.

Current Water Sources and Service Area

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency purposes. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and be able to easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

Do records and maps exist? Yes ☒ No ☐

Can staff access records and maps from a central secured location in the event of an emergency?

Yes ☒ No ☐

Does the appropriate staff know where the materials are located?

Yes ☒ No ☐

Procedure for Augmenting Water Supplies

Complete Tables 16 – 17 by listing all available sources of water that can be used to augment or replace existing sources in an emergency. Add rows to the tables as needed.
In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community.
Municipalities are encouraged to execute cooperative agreements for potential emergency

water services and copies should be included in **Appendix 6**. Outstate Communities may consider using nearby high capacity wells (industry, golf course) as emergency water sources. WSP should include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MDH are required for interconnections or the reuse of water.

Table 16. Interconnections with other water supply systems to supply water in an emergency

Other Water Supply System Owner	Capacity (GPM & MGD)	Note Any Limitations On Use	List of services, equipment, supplies available to respond
CITY OF ANOKA	2000 GPM 2,880,000 MGD	EMERGENCY USE ONLY	MUTUAL AID AGREEMENT MNWARN

GPM – Gallons per minute MGD – million gallons per day

Table 17. Utilizing surface water as an alternative source

Surface Water Source Name	Capacity (GPM)	Capacity (MGD)	Treatment Needs	Note Any Limitations On Use
MISSISSIPPI RIVER	2000	2,880,000	NATIONAL GUARD WOULD NEED TO TREAT THE WATER	

If not covered above, describe additional emergency measures for providing water (obtaining bottled water, or steps to obtain National Guard services, etc.)

The DNR asked us to evaluate a connection to the Elk River System. The Elk River and Ramsey systems are separated by 5 miles of rural development. An emergency interconnection would be a major construction project. Water could be trucked in or purchased from stores.

Allocation and Demand Reduction Procedures

Complete Table 18 by adding information about how decisions will be made to allocate water and reduce demand during an emergency. Provide information for each customer category, including its priority ranking, average day demand, and demand reduction potential for each customer category. Modify the customer categories as needed, and add additional lines if necessary.

Water use categories should be prioritized in a way that is consistent with Minnesota Statutes 103G.261 (#1 is highest priority) as follows:

1. Water use for human needs such as cooking, cleaning, drinking, washing and waste disposal; use for on-farm livestock watering; and use for power production that meets contingency requirements.
2. Water use involving consumption of less than 10,000 gallons per day (usually from private wells or surface water intakes)
3. Water use for agricultural irrigation and processing of agricultural products involving consumption of more than 10,000 gallons per day (usually from private high-capacity wells or surface water intakes)

4. Water use for power production above the use provided for in the contingency plan.
5. All other water use involving consumption of more than 10,000 gallons per day.
6. Nonessential uses – car washes, golf courses, etc.

Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Lower priority uses will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. Water use for lawn sprinkling, vehicle washing, golf courses, and recreation are legislatively considered non-essential.

Table 18. Water use priorities

Customer Category	Allocation Priority	Average Daily Demand (GDP)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	1,542,000	1,370,000
Institutional	2	14,600	10,000
Commercial	3	163,400	15,000
Industrial	4		
Irrigation	5		
Wholesale	N/A		
Non-Essential	6		
TOTAL		1,720,000	1,395,000

GPD – Gallons per Day

Tip: Calculating Emergency Demand Reduction Potential

The emergency demand reduction potential for all uses will typically equal the difference between maximum use (summer demand) and base use (winter demand). In extreme emergency situations, lower priority water uses must be restricted or eliminated to protect priority domestic water requirements. Emergency demand reduction potential should be based on average day demands for customer categories within each priority class. Use the tables in Part 3 on water conservation to help you determine strategies.

Complete Table 19 by selecting the triggers and actions during water supply disruption conditions.

Table 19. Emergency demand reduction conditions, triggers and actions (Select all that may apply and describe)

Emergency Triggers	Short-term Actions	Long-term Actions
☒ Contamination ☒ Loss of production ☒ Infrastructure failure ☒ Executive order by Governor ☐ Other: _____	☒ Supply augmentation through _emergency connections___ ☒ Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☒ Water allocation through chart above ☒ Meet with large water users to discuss their contingency plan.	☐ Supply augmentation through __emergency connections and developing new connections__ ☒ Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☐ Water allocation through____ ☐ Meet with large water users to discuss their contingency plan.

Notification Procedures

Complete Table 20 by selecting trigger for informing customers regarding conservation requests, water use restrictions, and suspensions; notification frequencies; and partners that may assist in the notification process. Add rows to the table as needed.

Table 20. Plan to inform customers regarding conservation requests, water use restrictions, and suspensions

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
☒ Short-term demand reduction declared (< 1 year)	☒ Website ☒ Email list serve ☒ Social media (e.g. Twitter, Facebook) ☒ Direct customer mailing, ☒ Press release (TV, radio, newspaper), ☒ Meeting with large water users (> 10% of total city use) ☒ Other: _Place signs in prominent locations and make announcements in schools_____	☐ Daily ☒ Weekly ☐ Monthly ☐ Annually	
☒ Long-term Ongoing demand reduction declared	☒ Website ☒ Email list serve ☒ Social media (e.g. Twitter, Facebook) ☒ Direct customer mailing, ☒ Press release (TV, radio, newspaper), ☒ Meeting with large water users (> 10% of total city use)	☐ Daily ☒ Weekly ☐ Monthly ☐ Annually	

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
	☐ Other: ___Place signs in prominent locations and make announcements in schools___		
☒ Governor's critical water deficiency declared	☒ Website ☒ Email list serve ☒ Social media (e.g. Twitter, Facebook) ☒ Direct customer mailing, ☒ Press release (TV, radio, newspaper), ☐ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☐ Daily ☒ Weekly ☐ Monthly ☐ Annually	

Enforcement

Prior to a water emergency, municipal water suppliers must adopt regulations that restrict water use and outline the enforcement response plan. The enforcement response plan must outline how conditions will be monitored to know when enforcement actions are triggered, what enforcement tools will be used, who will be responsible for enforcement, and what timelines for corrective actions will be expected.

Affected operations, communications, and enforcement staff must then be trained to rapidly implement those provisions during emergency conditions.

Important Note:

Disregard of critical water deficiency orders, even though total appropriation remains less than permitted, is adequate grounds for immediate modification of a public water supply authority's water use permit (2013 MN Statutes 103G.291)

Does the city have a critical water deficiency restriction/official control in place that includes provisions to restrict water use and enforce the restrictions? (This restriction may be an ordinance, rule, regulation, policy under a council directive, or other official control) Yes ☐ No ☒

If yes, attach the official control document to this WSP as **Appendix 7**.

If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

Irrespective of whether a critical water deficiency control is in place, does the public water supply utility, city manager, mayor, or emergency manager have standing authority to implement water restrictions? Yes ☒ No ☐

If yes, cite the regulatory authority reference: City Code 58-118 .

If no, who has authority to implement water use restrictions in an emergency?

Ramsey will adopt a Critical Water Deficiency Ordinance within 6 months of approval of this plan.

Appendix 5: Emergency Telephone List

Ramsey Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
Emergency Response Lead	Matt Kohner	763 433-9859	
Alternate Emergency Response Lead	Jeff Katers	763 433-9882	
Water Operator	John Nelson	763 286-0296	
Public Works Superintendent	Grant Riemer	763 286-0282	
City Engineer	Bruce Westby	763 433-9825	
City Administrator/ Public Communications	Kurt Ulrich	763 433-9845	

State and Local Emergency Response Contacts	Name	Work Telephone	Alternate Telephone
State Incident Duty Officer	Minnesota Duty Officer	651 649-5451 Metro	800 422-0798 Out State
County Emergency Director	Terry Stoltzman	763 421-4760	
National Guard	Minnesota Duty Officer	651 649-5451 Metro	800 422-0798 Out State
Mayor	Sarah Strommen		
Fire Chief	Matt Kohner	763 433-9859	
Sherriff	Anoka County Sheriff	763 427-1212	
Central Communications	Anoka County Sheriff	763 427-1212	
Ambulance	Allina	763 576-9593	
Hospital	Mercy Medical Center	763 236-7144	
Doctor or Medical Facility	Allina Clinic Ramsey	763 236-0000	

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer			
MDH	Drinking Water Protection	651 201-4700	
State Testing Laboratory	Minnesota Duty Officer	651 649-5451 Metro	800 422-0798 Out State
MPCA	St. Paul Regional Office	651 296-6300	800 657-3864
DNR Area Hydrologist	Kate Drewry	651 259-5753	
Anoka County Environmental Services	Bart Biernat	763 422-6985	
MNWARN	Minnesota Duty Officer	651 649-5451 Metro	800 422-0798 Out State

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Connexus Energy	763 323-2660	763 323-2600
Gas Company	CenterPoint Energy	612 372-5050	612 372-4727
Telephone Company	Century Link	763 712-5020	763 712-5002
Utility Locations	Gopher State One Call	800 252-1166	651 454-0002
County Highway Department	Anoka County	763 862-4201	
State Highway Department	MNDOT	651 296-3000	911

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System	City of Anoka	763 576-2980	763 576-2860
Emergency Water Connection	City of Anoka	763 573-2980	
Materials	HD Supply	952 937-9666	

Technical/ Contracted Services/ Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800 367-6792	
Well Driller/ Repair	E. H. Renner	763 427-6100	
Electrician	3 Way Electric	612 865-3262	
Water Main Repair	Dave Perkins Contracting	763 427-0109	612 363-6459
Chemical Feed	Hawkins Chemical	612 331-9100	
Meter Repair	City of Ramsey	763 433-9861	
SCADA System	Total Control	763 286-7365	
Valves, Pipes and Fittings	Ferguson Water Works	763 560-5200	
Laboratory	Twin Cities Water Clinic	953 935-3556	

Communications	Name	Work Telephone	Alternate Telephone
Newspaper	Star Tribune	612 673-4000	
	Pioneer Press	651 222-1111	
School Superintendent	David Law	763 506-1001	
Property and Casualty Insurance	League of MN Cities	651 281-1200	

Critical Water Users	Name	Work Telephone	Alternate Telephone
Long Term Care Center	Stoney River Assisted Living	612 615-9936	

Public Works Committee **6. 2.**

Meeting Date: 09/17/2019

By: Bruce Westby, Engineering/Public Works

Title:

Staff Updates on Improvement Projects and Items of Interest

Purpose/Background:

The purpose of this case is to update the Public Works Committee on current and proposed improvement projects within the City, and on other items of interest to the Committee.

City Improvement Projects

- **Bunker Lake Boulevard and Puma Street Improvements (#18-05)**
  - Completing punch list items, final payment fall of 2019
- **The COR Regional Infiltration Basin (#18-09)**
  - Under construction
  - WMO Permit requires completion by September 30, 2019
  - Applied for extension to June 30, 2020
- **2019 Crackseal Improvements (#19-00)**
  - Under construction
  - Final completion by end of September 2019
- **Ford Brook Estates Street Reconstructions (#19-01)**
  - Substantially complete
  - Final payment in 2020
- **Wood Pond Hills and Chestnut Ridge Street Reconstructions (#19-03)**
  - Substantially complete
  - Final payment in 2020
- **RTC 9th Addition Pond Lining Improvements (#19-06)**
  - Construction in late 2019/early 2020 using Stormwater Funds
- **Wetland 114P Outlet Control Improvements (#19-07)**
  - Engineering Staff developing plans
  - Construction in 2020 using Stormwater Funds
- **Germanium Street Drainage Improvements (#19-09)**
  - Engineering Staff developing plans
  - Construction in late 2019/early 2020 using Stormwater Funds
- **Hedgehog Street Drainage Improvements (#19-10)**
  - Engineering Staff developing plans
  - Construction in late 2019/early 2020 using Stormwater Funds

Anoka County Improvement Projects

- **Roundabout at Armstrong Boulevard/CSAH 83 and Alpine Drive**
  - Anoka County received $1.35M in HSIP funds (est. project cost = $1.5M)
  - Local cost share (Anoka County, City of Ramsey) = $150,000
  - City of Ramsey costs set per Anoka County Cost Share Policy
  - Anoka County to begin project design efforts in 2019/2020
  - Construction planned for 2022/2023 pending City and County approvals
- **CSAH 116 & TH 47 Intersection Improvements**
  - Construct additional turn lanes at CSAH 116/Bunker Lake Boulevard and State Highway 47/Saint

Francis Boulevard
- WSB completing final design; work just started
- City Staff stressed importance of communicating proposed improvements to the public and local businesses
- Pedestrian facility connections under discussion

MnDOT Improvement Projects

- **Ferry Street / Trunk Highway 47 Grade Separation @ BNSF Rail Crossing**
  - Preliminary design on hold - MnDOT exploring realignment of Highway 47 to remove S-curve at Anoka County fair grounds
  - TH 47 traffic study underway
  - MnDOT may combine project with Anoka Solution improvements

Items of Interest

- **Northwest Metro Surface Water Supply Feasibility Study**
  - Study is underway; about 30% complete
  - Member cities include Corcoran, Dayton, Ramsey and Rogers
  - MCES is funding 100% using Clean Water Funds
  - Completion in early 2020
- **Signal System at CSAH 5/Nowthen Boulevard and 170th Avenue**
  - Four-way STOP currently
  - Signal system under construction
  - Anticipated to be operational by October
- **New Retainage Law**
  - Update to be provided October 15th

Timeframe:

Staff estimates 5 minutes will be needed for updates and discussion.

Observations/Alternatives:

NA

Funding Source:

NA

Recommendation:

NA

Action:

No formal action required. For Committee review and discussion purposes only.

Attachments

No file(s) attached.

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 08:10 AM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:05 PM
Form Started By: Bruce Westby		Started On: 09/11/2019 10:58 AM
Final Approval Date: 09/12/2019		

Public Works Committee **6. 3.**

Meeting Date: 09/17/2019

By: Bruce Westby, Engineering/Public Works

Title:

Review Future Topics Calendar

Purpose/Background:

Attached is a calendar of future topics for review and discussion by the Public Works Committee. The calendar includes topics drawn from Committee requests received during meetings and/or unresolved topics previously discussed by the Committee. Calendar dates are estimated based on availability of information, staff workload and competing interests and objectives. Dates are therefore subject to change.

Timeframe:

Staff estimates less than 5 minutes will be necessary to review the future topics calendar and address questions.

Observations/Alternatives:

NA

Funding Source:

NA

Recommendation:

NA

Action:

No formal action required. For Committee review and discussion purposes only.

Attachments

PWC Calendar Sept2019

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/12/2019 08:09 AM
Kurt Ulrich	Kurt Ulrich	09/12/2019 03:05 PM
Form Started By: Bruce Westby		Started On: 09/11/2019 10:59 AM
Final Approval Date: 09/12/2019		

Public Works Committee Future Topics Calendar *

Date	Topics for Discussion – Committee Action
February 2020	Sunfish Lake Sedimentation Basin Improvements *(Westby)*
March 2020	Gibbon Street Basement Flooding Funding Options *(Westby)*
Future/TBD	Well Siting Study - Well #9 *(Westby)*
Future/TBD	Sunwood Drive Roundabout Landscaping *(Riemer)*
Date	**Topics for Discussion – Regulatory**
Future/TBD	Sunfish Lake Boulevard Speed Zone Study Results *(Westby)*
Future/TBD	Bunker Lake Boulevard Speed Study Results *(Westby)*
Future/TBD	County Ditch Maintenance / Buffer Law *(Westby)*
Date	**Topics for Discussion – Policy**
Future/TBD	Landscaped Median Maintenance Policy *(Riemer)*
December 2019	Draft Trail Maintenance Policy *(Westby)*
December 2019	Draft Stormwater Pond Maintenance Policy *(Westby)*
Date	**Topics for Discussion – Planning and Budget**
January 2020	Municipal State Aid System (MSAS) Revisions *(Westby)*
October 2019	Review 1996 and 2007 (unadopted) TH 47 Corridor Studies *(Westby)*
Ongoing	Public Works Facility Review/Update *(Riemer)*
Future/TBD	Long-Term Water Supply Plan *(Westby)*
Date	**Topics for Discussion – Staff Updates**
Future/TBD	Water Conservation Opportunities / Incentives *(Westby)*
Future/TBD	Asset Management Program *(Westby)*
Ongoing	NW Metro Area Regional Surface Water Supply Study

* Dates are estimated and are subject to change based on availability of information, staff workload, and competing objectives.