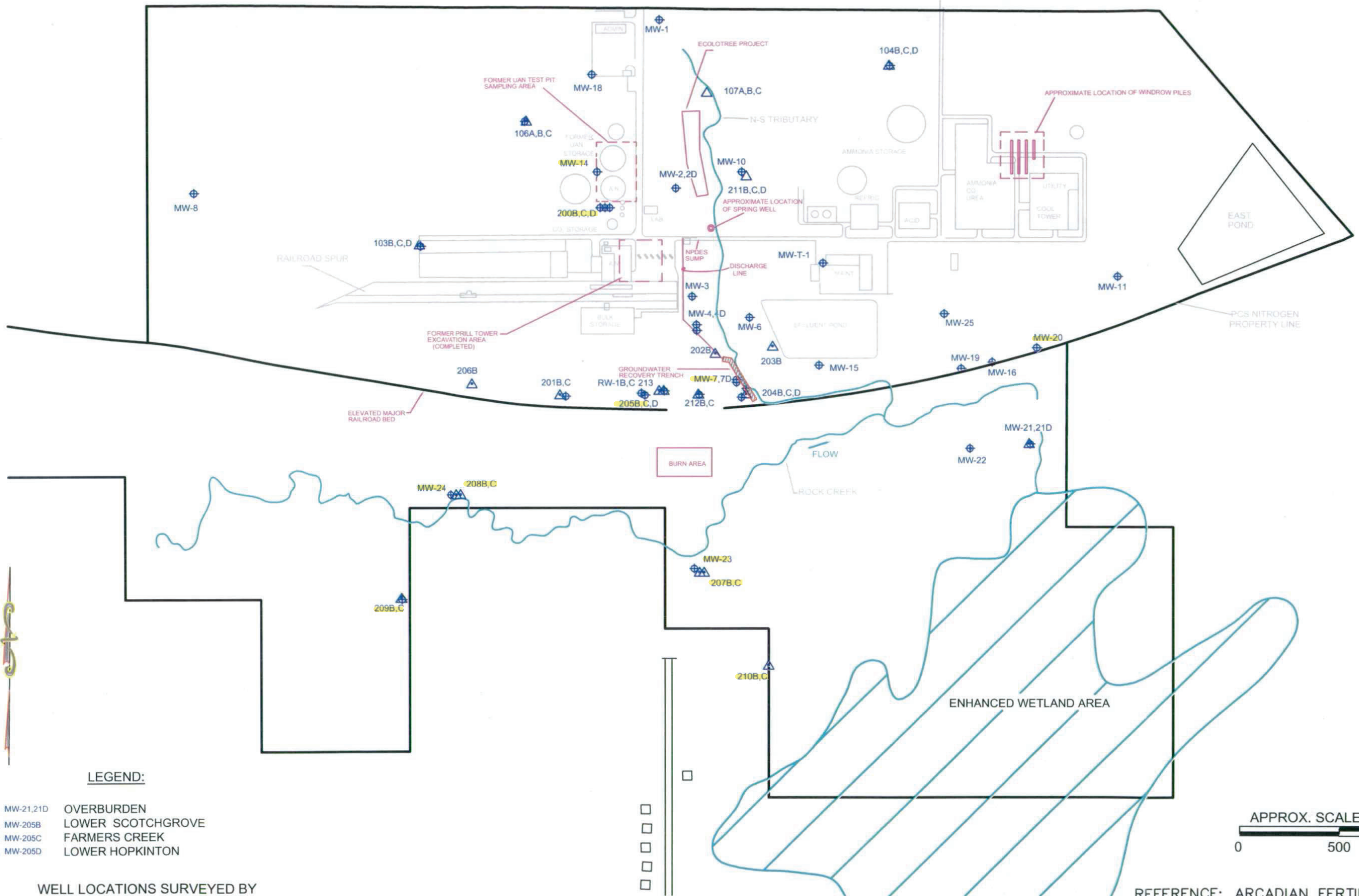


**Cross Roads Land Development**  
Former PCS Nitrogen Site  
**MONITORING WELL DATA**  
sample dates September 4 - 5, 2024

WELL	Depth	Water Level top of casing	Gallons purged *	Temp F	Ph	Ammonia mg/L	Nitrate mg/L	Nitrite mg/L	Notes
MW-7	19'.5"	4.52'	7.50	57.65	7.06	137	99.5	<0.5	Installed Waterra system. Purge rate 1.25 gpm, slight turbidity
MW-14	17'	7.22'	5.00	70.88	7.22	229	238	<1.0	Installed Waterra system. Purge rate 1.25 gpm
MW-20	26'	21.77'	2.00	61.99	7.17	4.65	27.2	<0.5	Purged with bailer, dry @ 2.00 gallons, allowed 10 minutes recovery
MW-23	16'	4.33'	6.00	66.76	7.05	19.9	223	<0.5	Installed Waterra system. Purge rate 1.25 gpm, turbid
MW-24	25'	4.38'	3.50	58.14	7.42	1.44	7.8	<0.1	Installed Waterra system. Purge rate 1.25 gpm, turbid
MW-200B	112'	10.49'	50.00	58.19	7.70	22.5	15.4	<0.1	Purge rate 2.50 gpm Turbid
MW-200C	80'	11.55'	35.00	59.54	7.59	6.4	16	<0.1	Purge rate 3.00 gpm
MW-200D	191'	16.72'	85.50	60.73	7.54	26.6	27.4	<0.1	Purge rate 2.00 gpm slight turbidity
MW-205B	145'	36.66'	53.00	56.16	7.33	3560	3590	<10.0	Purge rate 2.00 gpm
MW-205C	119'	30.00'	44.00	56.77	8.25	2710	6220	33.9	Purge rate 2.00 gpm
MW-207B	73'.6"	2.10'	35.00	56.68	6.79	890	1350	<4.0	Purge rate 2.50 gpm
MW-207C	85'	artesian	42.00	57.13	7.26	1600	1650	<4.0	Purge rate 2.50 gpm
MW-208B	72'	1.88'	35.00	55.17	7.72	6.46	20.4	<1.0	Purge rate 2.50 gpm
MW-208C	145'	1.36'	71.00	55.98	7.53	4.08	47.5	<0.5	Purge rate 2.25 gpm
MW-209BC	165'	23.10'	70.00	58.01	7.71	<0.10	9.3	<0.1	Purge rate 1.50 gpm
MW-210BC	85'	14.17'	35.00	59.59	7.60	0.98	6.9	<0.1	Installed Waterra system. Purge rate 0.75 gpm

\*(depth-depth to water) x 0.163 x 3 = gallons purge 3 volumes

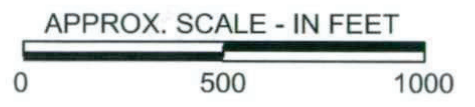
Field sample collected by Randy Gavin, O.A. Technical Services  
Report generated by Len Hoogerwerf, QC Analytical Services, LLC  
**Temperature and pH field measured by Randy Gavin with InSitu AT500**



**LEGEND:**

- ⊕ MW-21,21D OVERBURDEN
- △ MW-205B LOWER SCOTCHGROVE
- △ MW-205C FARMERS CREEK
- △ MW-205D LOWER HOPKINTON

WELL LOCATIONS SURVEYED BY  
MAJOR ENGINEERING AND  
VANDERSCHAAF AND ASSOCIATES



REFERENCE: ARCADIAN FERTILIZER L.P.

G: \PROJECTS\CLIENTS\PCS-NITRO

**SITE MAP**  
**PCS NITROGEN FERTILIZER**  
**CLINTON, IOWA**



DRAWN:	WBM	JOB:	6550-08-0475
APPROVAL:	JCP	DATE:	3-25-09
SCALE:	AS SHOWN	DWG:	2

## Laboratory Report

**Cross Roads Land Development, LLC**  
 Mike Cross  
 P.O. Box 80  
 Camanche, IA 52730

**Date Received:** 09/04/24 16:41  
**Date Reported:** 09/17/24 13:57  
**Project:** Monitoring Well water

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW - 23 Grab</b>		<b>Date Sampled: 09/04/24 13:05</b>		<b>Date Received: 09/04/24 16:41</b>		
<b>Lab No.: 24I0454-01</b>		<b>Sampled by: Randy Gavin</b>				

**Classical Chemistry Parameters**

Ammonia as N	19.9	mg/L	09/12/24 11:58	jc	Timberline	
Nitrate as N	223	mg/L	09/06/24 17:12	EV	EPA 300.0	
Nitrite as N	<0.5	mg/L	09/06/24 17:12	EV	EPA 300.0	
Field pH	7.05	pH Units	09/04/24 13:05	Randy G:	SM 4500 H + B	
Field Temperature	66.76	°F	09/04/24 13:05	Randy G:	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW - 205B Grab</b>		<b>Date Sampled: 09/04/24 9:35</b>		<b>Date Received: 09/04/24 16:41</b>		
<b>Lab No.: 24I0454-02</b>		<b>Sampled by: Randy Gavin</b>				

**Classical Chemistry Parameters**

Ammonia as N	3560	mg/L	09/12/24 12:01	jc	Timberline	
Nitrate as N	3590	mg/L	09/06/24 17:12	EV	EPA 300.0	
Nitrite as N	<10.0	mg/L	09/06/24 17:12	EV	EPA 300.0	
Field pH	7.33	pH Units	09/04/24 9:35	Randy G:	SM 4500 H + B	
Field Temperature	56.16	°F	09/04/24 9:35	Randy G:	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW - 205C Grab</b>		<b>Date Sampled: 09/04/24 10:10</b>		<b>Date Received: 09/04/24 16:41</b>		
<b>Lab No.: 24I0454-03</b>		<b>Sampled by: Randy Gavin</b>				

**Classical Chemistry Parameters**

Ammonia as N	2710	mg/L	09/12/24 12:03	jc	Timberline	
Nitrate as N	6220	mg/L	09/05/24 17:46	EV	EPA 300.0	
Nitrite as N	33.9	mg/L	09/05/24 16:06	kc	EPA 300.0	
Field pH	8.25	pH Units	09/04/24 10:10	Randy G:	SM 4500 H + B	
Field Temperature	56.77	°F	09/04/24 10:10	Randy G:	SM 2550 B	

Analysis Certified by:



Randal Wanke, Laboratory Director

Cross Roads Land Development, LLC  
 P.O. Box 80  
 Camanche IA, 52730

Project: Monitoring Well water

Client Contact: Mike Cross

**Reported:**  
 09/17/24 13:57

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW - 207B Grab</b>			<b>Date Sampled: 09/04/24 13:25</b>		<b>Date Received: 09/04/24 16:41</b>	
<b>Lab No.: 24I0454-04</b>			<b>Sampled by: Randy Gavin</b>			
<b>Classical Chemistry Parameters</b>						
Ammonia as N	890	mg/L	09/12/24 13:08	jc	Timberline	
Nitrate as N	1350	mg/L	09/05/24 17:46	EV	EPA 300.0	
Nitrite as N	<4.0	mg/L	09/05/24 16:06	kc	EPA 300.0	
Field pH	6.79	pH Units	09/04/24 13:25	Randy G	SM 4500 H + B	
Field Temperature	56.68	°F	09/04/24 13:25	Randy G	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW - 207C Grab</b>			<b>Date Sampled: 09/04/24 13:15</b>		<b>Date Received: 09/04/24 16:41</b>	
<b>Lab No.: 24I0454-05</b>			<b>Sampled by: Randy Gavin</b>			
<b>Classical Chemistry Parameters</b>						
Ammonia as N	1600	mg/L	09/12/24 13:10	jc	Timberline	
Nitrate as N	1650	mg/L	09/05/24 17:46	EV	EPA 300.0	
Nitrite as N	<4.0	mg/L	09/05/24 16:06	kc	EPA 300.0	
Field pH	7.26	pH Units	09/04/24 13:15	Randy G	SM 4500 H + B	
Field Temperature	57.13	°F	09/04/24 13:15	Randy G	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW - 208B Grab</b>			<b>Date Sampled: 09/04/24 11:05</b>		<b>Date Received: 09/04/24 16:41</b>	
<b>Lab No.: 24I0454-06</b>			<b>Sampled by: Randy Gavin</b>			
<b>Classical Chemistry Parameters</b>						
Ammonia as N	6.46	mg/L	09/12/24 12:10	jc	Timberline	
Nitrate as N	20.4	mg/L	09/05/24 17:46	EV	EPA 300.0	
Nitrite as N	<1.0	mg/L	09/05/24 16:06	kc	EPA 300.0	
Field pH	7.72	pH Units	09/04/24 11:05	Randy G	SM 4500 H + B	
Field Temperature	55.17	°F	09/04/24 11:05	Randy G	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW - 208C Grab</b>			<b>Date Sampled: 09/04/24 11:45</b>		<b>Date Received: 09/04/24 16:41</b>	
<b>Lab No.: 24I0454-07</b>			<b>Sampled by: Randy Gavin</b>			
<b>Classical Chemistry Parameters</b>						
Ammonia as N	4.08	mg/L	09/12/24 12:13	jc	Timberline	
Nitrate as N	47.5	mg/L	09/06/24 17:12	EV	EPA 300.0	
Nitrite as N	<0.5	mg/L	09/06/24 17:12	EV	EPA 300.0	
Field pH	7.53	pH Units	09/04/24 11:45	Randy G	SM 4500 H + B	

Cross Roads Land Development, LLC  
 P.O. Box 80  
 Camanche IA, 52730

Project: Monitoring Well water

Client Contact: Mike Cross

**Reported:**  
 09/17/24 13:57

Field Temperature 55.98 °F 09/04/24 11:45 Randy G: SM 2550 B

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
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<b>Sample ID: MW - 209BC Grab</b>			<b>Date Sampled: 09/04/24 15:25</b>		<b>Date Received: 09/04/24 16:41</b>	
<b>Lab No.: 24I0454-08</b>			<b>Sampled by: Randy Gavin</b>			

**Classical Chemistry Parameters**

Ammonia as N	<0.10	mg/L	09/12/24 12:20	jc	Timberline	
Nitrate as N	9.3	mg/L	09/06/24 17:12	EV	EPA 300.0	
Nitrite as N	<0.1	mg/L	09/06/24 17:12	EV	EPA 300.0	
Field pH	7.71	pH Units	09/04/24 15:25	Randy G:	SM 4500 H + B	
Field Temperature	58.01	°F	09/04/24 15:25	Randy G:	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
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<b>Sample ID: MW-7 Grab</b>			<b>Date Sampled: 09/05/24 11:25</b>		<b>Date Received: 09/05/24 14:47</b>	
<b>Lab No.: 24I0541-01</b>			<b>Sampled by: RTG</b>			

**Classical Chemistry Parameters**

Ammonia as N	137	mg/L	09/09/24 12:17	jc	Timberline	
Nitrate as N	99.5	mg/L	09/07/24 10:50	EV	EPA 300.0	
Nitrite as N	<0.5	mg/L	09/07/24 10:50	EV	EPA 300.0	
Field pH	7.06	pH Units	09/05/24 11:25	RTG	SM 4500 H + B	
Field Temperature	57.65	°F	09/05/24 11:25	RTG	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
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<b>Sample ID: MW-14 Grab</b>			<b>Date Sampled: 09/05/24 12:25</b>		<b>Date Received: 09/05/24 14:47</b>	
<b>Lab No.: 24I0541-02</b>			<b>Sampled by: RTG</b>			

**Classical Chemistry Parameters**

Ammonia as N	229	mg/L	09/09/24 12:19	jc	Timberline	
Nitrate as N	238	mg/L	09/06/24 17:12	EV	EPA 300.0	
Nitrite as N	<1.0	mg/L	09/06/24 17:12	EV	EPA 300.0	
Field pH	7.22	pH Units	09/05/24 12:25	RTG	SM 4500 H + B	
Field Temperature	70.88	°F	09/05/24 12:25	RTG	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
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<b>Sample ID: MW-20 Grab</b>			<b>Date Sampled: 09/05/24 10:30</b>		<b>Date Received: 09/05/24 14:47</b>	
<b>Lab No.: 24I0541-03</b>			<b>Sampled by: RTG</b>			

**Classical Chemistry Parameters**

Ammonia as N	4.65	mg/L	09/09/24 12:22	jc	Timberline	
Nitrate as N	27.2	mg/L	09/07/24 10:50	EV	EPA 300.0	
Nitrite as N	<0.5	mg/L	09/07/24 10:50	EV	EPA 300.0	

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Project: Monitoring Well water

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**Reported:**  
 09/17/24 13:57

Field pH	7.17	pH Units	09/05/24 10:30	RTG	SM 4500 H + B
Field Temperature	61.99	°F	09/05/24 10:30	RTG	SM 2550 B

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
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<b>Sample ID: MW-24 Grab</b>	<b>Date Sampled: 09/05/24 8:55</b>	<b>Date Received: 09/05/24 14:47</b>
<b>Lab No.: 24I0541-04</b>	<b>Sampled by: RTG</b>	

**Classical Chemistry Parameters**

Ammonia as N	1.44	mg/L	09/09/24 12:24	jc	Timberline
Nitrate as N	7.8	mg/L	09/07/24 10:50	EV	EPA 300.0
Nitrite as N	<0.1	mg/L	09/07/24 10:50	EV	EPA 300.0
Field pH	7.42	pH Units	09/05/24 8:55	RTG	SM 4500 H + B
Field Temperature	58.14	°F	09/05/24 8:55	RTG	SM 2550 B

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
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<b>Sample ID: MW-200B Grab</b>	<b>Date Sampled: 09/05/24 11:50</b>	<b>Date Received: 09/05/24 14:47</b>
<b>Lab No.: 24I0541-05</b>	<b>Sampled by: RTG</b>	

**Classical Chemistry Parameters**

Ammonia as N	22.5	mg/L	09/09/24 12:26	jc	Timberline
Nitrate as N	15.4	mg/L	09/07/24 10:50	EV	EPA 300.0
Nitrite as N	<0.1	mg/L	09/07/24 10:50	EV	EPA 300.0
Field pH	7.70	pH Units	09/05/24 11:50	RTG	SM 4500 H + B
Field Temperature	58.19	°F	09/05/24 11:50	RTG	SM 2550 B

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
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<b>Sample ID: MW-200C Grab</b>	<b>Date Sampled: 09/05/24 11:20</b>	<b>Date Received: 09/05/24 14:47</b>
<b>Lab No.: 24I0541-06</b>	<b>Sampled by: RTG</b>	

**Classical Chemistry Parameters**

Ammonia as N	6.40	mg/L	09/09/24 12:29	jc	Timberline
Nitrate as N	16.0	mg/L	09/07/24 10:50	EV	EPA 300.0
Nitrite as N	<0.1	mg/L	09/07/24 10:50	EV	EPA 300.0
Field pH	7.59	pH Units	09/05/24 11:20	RTG	SM 4500 H + B
Field Temperature	59.54	°F	09/05/24 11:20	RTG	SM 2550 B

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
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<b>Sample ID: MW-200D Grab</b>	<b>Date Sampled: 09/05/24 11:35</b>	<b>Date Received: 09/05/24 14:47</b>
<b>Lab No.: 24I0541-07</b>	<b>Sampled by: RTG</b>	

**Classical Chemistry Parameters**

Ammonia as N	26.6	mg/L	09/09/24 12:31	jc	Timberline
Nitrate as N	27.4	mg/L	09/07/24 10:50	EV	EPA 300.0

Cross Roads Land Development, LLC  
 P.O. Box 80  
 Camanche IA, 52730

Project: Monitoring Well water

Client Contact: Mike Cross

**Reported:**  
 09/17/24 13:57

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW-200D Grab</b>			<b>Date Sampled: 09/05/24 11:35</b>		<b>Date Received: 09/05/24 14:47</b>	
<b>Lab No.: 24I0541-07</b>			<b>Sampled by: RTG</b>			
Nitrite as N	<0.1	mg/L	09/07/24 10:50	EV	EPA 300.0	
Field pH	7.54	pH Units	09/05/24 11:35	RTG	SM 4500 H + B	
Field Temperature	60.73	°F	09/05/24 11:35	RTG	SM 2550 B	

Analyte	Result	Units	Analyzed	Analyst	Method	Notes
<b>Sample ID: MW-210BC Grab</b>			<b>Date Sampled: 09/05/24 14:00</b>		<b>Date Received: 09/05/24 14:47</b>	
<b>Lab No.: 24I0541-08</b>			<b>Sampled by: RTG</b>			

**Classical Chemistry Parameters**

Ammonia as N	0.98	mg/L	09/12/24 12:42	jc	Timberline	
Nitrate as N	6.9	mg/L	09/07/24 10:50	EV	EPA 300.0	
Nitrite as N	<0.1	mg/L	09/07/24 10:50	EV	EPA 300.0	
Field pH	7.60	pH Units	09/05/24 14:00	RTG	SM 4500 H + B	
Field Temperature	59.59	°F	09/05/24 14:00	RTG	SM 2550 B	