TABLES

TETRA TECH

Table 1-1
Summary of Groundwater Quality Exemption Requests
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Parameter	Well ID	PAL/ES Exceedance	2025 NR 140.28 Exemption Request	2001-2002 NR 140.28 Exemption Granted/ACL Approved	1993-1997 NR 140.28 Exemption Granted/ACL Approved	Well Abandoned
Nitrate + Nitrite	MW-02	ES			ACL	X
	MW-07	PAL			X ACL	X
	MW-08A	ES			X ACL	X
	MW-12A	ES			ACL	X
	MW-02	PAL		X ACL		X
	MW-07	PAL		X		X
	MW-08A	ES		X		X
	MW-10A	PAL		X		X
	MW-11A	PAL		X ACL		X
	MW-12A	PAL		X ACL		X
	MW-103	PAL		X ACL		X
	MW-201	PAL	X			
	MW-202	PAL	X			
	MW-202A	PAL	X			
	MW-204	ES	X			
	MW-204A	PAL	X			
	MW-205	ES	X			
	MW-206	ES	X			
	MW-207	PAL	X			
	MW-208	ES	X			
	MW-209	ES	X			
	MW-210	ES	X			
	MW-210A	PAL	X			
	MW-11AR	PAL	X			
	MW-12AR	PAL	X			
	MW-103R	PAL	X			
	MW-104	PAL	X			
	MW-106	PAL	X			
	MW-107	PAL	X			
	MW-109	PAL	X			
	MW-110	PAL	X			
Manganese	MW-02	ES			X ACL	X
	MW-06	PAL			X ACL	X
	MW-07	ES			X ACL	X
	MW-07C	ES			X ACL	X
	MW-08A	ES			X ACL	X
	MW-11	ES			X ACL	X
	MW-11A	ES			ACL	X
	MW-12A	ES			X ACL	X
	MW-01R	ES		X		X
	MW-02	ES		X		X
	MW-06	PAL		X		X
	MW-07	ES		X		X

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Table 1-1 (Continued)
Summary of Groundwater Quality Exemption Requests
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Parameter	Well ID	PAL/ES Exceedance	2025 NR 140.28 Exemption Request	2001-2002 NR 140.28 Exemption Granted/ACL Approved	1993-1997 NR 140.28 Exemption Granted/ACL Approved	Well Abandoned
Manganese (continued)	MW-07C	ES		X		X
	MW-08A	ES		X		X
	MW-11A	ES		X		X
	MW-12A	ES		X		X
	MW-101	PAL		X		
	MW-103	ES		X		X
	MW-104	PAL		X ACL		
	MW-106	ES		X ACL		
	MW-106A	ES		X		
	MW-107	PAL		X		
	MW-109A	ES		X		
	MW-201	ES	X			
	MW-202	PAL	X			
	MW-203	ES	X			
	MW-204	ES	X			
	MW-205	ES	X			
	MW-207	ES	X			
	MW-208	ES	X			
	MW-210	ES	X			
	MW-1RR	ES	X			
	MW-1ARR	ES	X			
	MW-11CR	ES	X			
	MW-12AR	ES	X			
	MW-103R	ES	X			
Lead	MW-04	PAL		X		
	MW-203	PAL	X			
	MW-206A	PAL	X			
Chloride	MW-205	PAL	X			
Iron	MW-4	PAL			X	X
	MW-6	PAL			X	X
	MW-7	PAL			X ACL	X
	MW-7C	ES			X ACL	X
	MW-8A	ES			X ACL	X
	MW-10A	PAL			X ACL	X
	MW-11A	ES			X ACL	X
	MW-04	ES		X		X
	MW-06	PAL		X		X
	MW-07	ES		X		X
	MW-07C	ES		X		X
	MW-08A	PAL		X		X
	MW-10A	PAL		X		X
	MW-11A	PAL		X		X
Sulfate	MW-107	ES	X			

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Table 1-1 (Continued)
Summary of Groundwater Quality Exemption Requests
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Parameter	Well ID	PAL/ES Exceedance	2025 NR 140.28 Exemption Request	2001-2002 NR 140.28 Exemption Granted/ACL Approved	1993-1997 NR 140.28 Exemption Granted/ACL Approved	Well Abandoned
Vanadium	MW-101	PAL		X ACL		
Chromium	MW-206	PAL	X			
Benzene	MW-202A	PAL	X			

Prepared by: LD
Checked by: LS

Notes:

1. PAL NR 140 Preventive Action Limit
2. ES NR 140 Enforcement Standard
3. ACL Approved Well Specific Alternate Concentration Standard
4. This table summarizes the NR 140.28 exemption requests and previously granted exemptions provided in Sections 1.3.1 and 1.3.2 of the 2025 Feasibility Report for the Timberline Trail RDF Northern Expansion No. 2.
5. Previous NR 140.28 groundwater exemption approvals were provided in the July 1993 Feasibility Determination Letter, the June 1997 Groundwater Monitoring Plan Modification Approval Letter, the August 2001 Feasibility Determination Letter, and the June 2002 Plan of Operation Approval. WDNR correspondence letters are provided in Appendix B of the 2025 Feasibility Report.

TETRA TECH

Table 4-1
Adjacent Land Ownership Within 1,200 Feet of Landfill
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Map ID No.	Property Owner	Owner Mailing Address	Parcel Identification Number	Municipality	ZIP Code
18	JEFFREY C BROWN & JAMES K BROWN	18330 130TH AVE CHIPPEWA FALLS, WI 54729	036001520000 036001510000	TOWN OF STUBBS	54895
20	JOYCE J CWOJDZINSKI	N4403 LOG CABIN RD RICE LAKE, WI 54868	036002740000	TOWN OF STUBBS	54895
21	KARL SCHROEDER	3966 S 44TH ST GREENFIELD, WI 53220-2703	036001560000	TOWN OF STUBBS	54895
38	TOWN OF STUBBS	N3305 S HUTCHINSON RD BRUCE, WI 54819	036001550000	TOWN OF STUBBS	54895
39	WASTE MANAGEMENT OF WISC	PO BOX 1450 CHICAGO, IL 60690-1450	036001780000 036002500000 036001740000 036001700000 036001690000 036001660000 036001630000 036001620000 036001650000 036001640000	TOWN OF STUBBS	54895
41	WOJTKIEWICZ TRUST	119 HILLTOP DR RICE LAKE, WI 54868	036002510000 036002540000	TOWN OF STUBBS	54895

Prepared by: AC Checked by: TD

Notes:

1. Refer to Figure 4-1 of the Northern Expansion No. 2 Feasibility Report for Map ID No. and parcel locations.

2. Parcel Source is the Wisconsin Statewide Parcel Map Initiative from the Wisconsin Land Information Program and the State Cartographer's Office, V11 Project, Dated June 24, 2025.

TETRA TECH

Table 5-1
Soil Boring and Monitoring Well Inventory
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Boring/Well ID	Approx. Distance from Limits of Waste (ft)	Approx. Ground Surface Elevation (ft-MSL)	Boring Depth (ft)	Approx. Bottom Boring Elevation (ft-MSL)	Sample Interval (ft)	Well Bottom Elevation (ft-MSL)	Well Type	Use for FR well (meets NR 512 requirements)	Use for FR boring (meets NR 512 requirements)	Comments
B120	within	1229	112	1117	continuous	-	-	-	X	
B121	within	1225	110	1115	continuous	-	-	-	-	supplemental boring info
B122	within	1229	115	1114	continuous	-	-	-	X	
B123	within	1232	120	1112	continuous	-	-	-	-	supplemental boring info
B-211	within	1232	59	1173	continuous	-	-	-	X	
B-212	within	1227	69	1158	continuous	-	-	-	X	
B-213	within	1228	70	1158	continuous	-	-	-	X	
B-214	within	1230	58	1172	continuous	-	-	-	X	
B-215	78	1269	93	1176	continuous	-	-	-	X	
B-216	within	1229	57	1172	continuous	-	-	-	X	
B-217	within	1231	67	1164	continuous	-	-	-	X	
B-218	158	1232	74	1158	continuous	-	-	-	X	
B-219	174	1232	65	1167	continuous	-	-	-	X	
B-220	524	1232	58	1174	continuous	-	-	-	X	
B-221	528	1239	81	1158	continuous	-	-	-	X	
B-201X	78	1269	105	1164	continuous	-	-	-	X	
B-206X	182	1229	130	1099	continuous	-	-	-	X	
MW101	80	1241	99	1128	-	1129.8	WT	X	-	
MW101A	80	1241	135	1092	continuous	1101.5	P	X	X	
MW102	within	1229	115	1114	continuous	1129.0	WT	X	X	
MW103	-	1231	117	1114	continuous	1128.4	WT	-	-	abandoned, replaced by MW-103R
MW-103R	66	1257	129.5	1127.5	continuous	1128.4	WT	X	X	
MW104	126	1222	105	1115	continuous	1128.2	WT	X	X	
MW105	within	1231	105	1126	-	1126.3	WT	-	-	abandoned
MW105A	within	1231	135	1096	continuous	1098.7	P	-	X	abandoned
MW106	120	1220	95	1125	-	1126.8	WT	X	-	
MW106A	120	1220	125	1095	continuous	1097.9	P	X	X	
MW-201	76	1269	142.5	1126.5	-	1126.4	WT	X	-	
MW-201A	80	1269	171	1098	continuous	1098.7	P	X	X	
MW-202	within	1229	101	1128	-	1128.6	WT	X	-	
MW-202A	within	1229	130	1099	continuous	1099.6	P	X	X	
MW-203	108	1246	112	1134	continuous	1135.4	WT	X	X	

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Table 5-1 (Continued)
Soil Boring and Monitoring Well Inventory
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Boring/Well ID	Approx. Distance from Limits of Waste (ft)	Approx. Ground Surface Elevation (ft-MSL)	Boring Depth (ft)	Approx. Bottom Boring Elevation (ft-MSL)	Sample Interval (ft)	Well Bottom Elevation (ft-MSL)	Well Type	Use for FR well (meets NR 512 requirements)	Use for FR boring (meets NR 512 requirements)	Comments
MW-204	within	1229	100	1129	-	1130.6	WT	X	-	
MW-204A	within	1230	129	1101	continuous	1101.5	P	X	X	
MW-205	76	1248	115	1133	continuous	1133.6	WT	X	X	
MW-206	180	1230	101	1129	-	1129.5	WT	X	-	
MW-206A	180	1230	130.3	1099.7	-	1099.4	P	X	-	
MW-207	210	1267	139	1128	continuous	1128.8	WT	X	X	
MW-208	522	1263	133	1130	continuous	1130.6	WT	X	X	
MW-209	534	1235	108	1127	continuous	1127.6	WT	X	X	
MW-210	444	1239	105	1134	-	1134.9	WT	X	-	
MW-210A	444	1239	138	1101	continuous	1101.5	P	X	X	

Prepared by: LD Checked by: AH/LS

Notes:

1. WT — Included in NR 512 count for water table wells
2. P — Included in NR 512 count for piezometers
3. B-# / MW-# — Included in NR 512 boring count
4. bgs = below ground surface
5. ft - MSL = feet above mean sea level
6. Boring information included in Appendix H of the Northern Expansion No. 2 FR.
7. Well construction information included in Appendix I of the Northern Expansion No. 2 FR.
8. This inventory table includes borings and wells utilized in the AGIP and included on the geological cross sections (Plan Sheets 5-18) of FR plan set for the proposed Northern Expansion No. 2.
9. Approximate ground surface elevation (ft MSL) is at time boring was drilled.
10. Approximate distance from waste (feet) is distance from the proposed Northern Expansion limits of waste.
11. Groundwater wells MW-101, MW-101A, and MW-104 were extened up to new ground surface elevation.

TETRA TECH

Table 5-2
Summary Of Laboratory Soil Testing Results
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

BORING ID	SAMPLE DEPTH (FEET)	USCS GROUP SYMBOL	ATTERBERG LIMITS			GRAIN SIZE					K_v (cm/s)
			LL	PL	PI	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	P200 (%)	
Silty Clay (Loess)											
AB-03	1	ML	-	-	-	-	-	-	-	97.2	-
B-14	0-2	CL	37	24	13	0.0	5.4	68.3	26.3	94.6	-
B-16	0-2	CL-ML	27	21.0	6	0.0	2.5	77.6	19.9	97.5	-
B-16	0-2	CL-ML	27	21	6	0.0	2.5	77.6	19.9	97.5	-
B-22	0-2	CL	32	23	9	0.0	6.7	70.9	22.4	93.3	-
B-218	2-3	CL	32.0	16	16	2.2	26.0	49.6	22.2	71.8	-
MW-01A	2.5	CL	36	17.0	19	0.0	12.2	59.3	28.4	87.7	8.30E-08
MW-07	0-2	CL	30	22	8	0.0	9.8	65.3	24.9	90.2	-
MW-08B	0-2	ML	NV	NP	NP	0.0	2.7	76.7	20.6	97.3	2.10E-06
MW-207	44-46	CL	38	21	17	0.1	10.8	58.6	30.5	89.1	-
MW-209	3-4	CL	28	17	11	0.0	2.3	77.0	20.7	97.7	-
Minimum			27.0	16.0	6.0	0.0	2.3	49.6	19.9	71.8	8.30E-08
Maximum			38.0	24.0	19.0	2.2	26.0	77.6	30.5	97.7	2.10E-06
Mean			31.9	20.2	11.7	0.2	8.1	68.1	23.6	92.2	1.09E-06
Standard Deviation			4.0	2.7	4.6	0.7	6.9	9.3	3.6	7.4	1.01E-06
BORING ID	SAMPLE DEPTH (FEET)	USCS GROUP SYMBOL	ATTERBERG LIMITS			GRAIN SIZE					K_v (cm/s)
			LL	PL	PI	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	P200 (%)	
Silty Sand (Till)											
B-18	30-32	SM	NV	NP	NP	6.5	72.5	13.9	7.1	21.0	-
B-24	20-22	SM	17	14	3	14.6	50.3	19.7	15.4	35.1	-
B-25	27-29	SM	17	15	2	19.7	51.5	18.8	10.0	28.8	-
B-220	9-10	GM	18	15	3	47.4	34.0	11.1	7.5	18.6	-
B-221	58-59	SM	NV	NP	NP	0.0	79.7	19.4	0.9	20.3	-
MW-01A	63.5-65.7	SM	NV	NP	NP	10.3	65.1	16.5	8.1	24.6	1.20E-07
MW-01A	63.5-65.7	SM	NV	NP	NP	10.3	65.1	16.5	8.1	24.6	9.90E-08
MW-02	82	SM	NV	NP	NP	28.8	51.9	-	-	19.3	-
MW-03	40	SM	-	-	-	37.5	48.3	-	-	13.7	-
MW-05	55	SM	-	-	-	5.6	68.6	-	-	25.8	-
MW-07	75-77	SM	NV	NP	NP	16.2	61.1	15.8	6.9	22.7	-
MW-09C	20-22, 25-27	SM	16	15	1	4.6	52.1	31.7	11.6	43.3	-
MW-09C	45-47	SM	NV	NP	NP	9.4	67.0	17.5	6.1	23.6	1.40E-05
MW-09C	60-62, 65-67	SM	NV	NP	NP	9.5	68.2	15.4	6.9	22.3	-
MW-11C	85-87	SM	NV	NP	NP	10.9	63.0	18.6	7.5	26.1	-
MW-104	88-90	SM	14	NP	NP	9.7	66.4	15.7	8.2	23.9	-
MW-105A	80-85	SM	12	NP	NP	18.3	56.7	17.6	7.4	25.0	-
MW-106A	88-90	SM	14	13	1	3.8	67.6	18.2	10.4	28.6	-
MW-107	68-70	SM	13	12	1	13.0	57.6	18	11.4	29.4	-
OW-27	25-26.5	SM	NV	NP	NP	16.8	61.2	14.8	7.2	22.0	-
OW-29	21-23	SM	NV	NP	NP	10.5	66.2	16.8	6.5	23.3	-

TETRA TECH

Table 5-2 (continued)
Summary Of Laboratory Soil Testing Results
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

BORING ID	SAMPLE DEPTH (FEET)	USCS GROUP SYMBOL	ATTERBERG LIMITS			GRAIN SIZE					K_v (cm/s)
			LL	PL	PI	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	P200 (%)	
Silty Sand (Till) ***continued***											
OW-31	11-13	SC-SM	20	14	6	11.0	64.8	14.0	10.2	24.2	-
MW-201	135-136	SM	NV	NP	NP	38.5	41.2	11.5	8.8	20.3	-
MW-203	106-107	SM	15	NP	NP	19.7	58.4	13.9	8.0	21.9	-
MW-204A	96-97	SM	NV	NP	NP	16.2	60.3	14.5	9.0	23.5	-
MW-205	111-112	SM	15	NP	NP	23.5	55.7	15.4	5.4	20.8	-
MW-208	126-127	SM	NV	NP	NP	14.5	63.7	15.0	6.8	21.8	-
MW-209	14-15	SM	NV	NP	NP	36.3	42.5	13.9	7.3	21.2	-
MW-209	104-105	SM	NV	NP	NP	15.0	62.7	14.2	8.1	22.3	-
MW-210	102-103	SM	NV	NP	NP	30.1	49.9	14.7	5.3	20.0	-
Minimum			12.0	12.0	1.0	0.0	34.0	11.1	0.9	13.7	9.9E-08
Maximum			20.0	15.0	6.0	47.4	79.7	31.7	15.4	43.3	1.4E-05
Mean			15.5	14.0	2.4	16.9	59.1	16.4	8.0	23.9	4.7E-06
Standard Deviation			2.2	1.1	1.7	11.3	9.8	3.7	2.5	5.3	6.5E-06

BORING ID	SAMPLE DEPTH (FEET)	USCS GROUP SYMBOL	ATTERBERG LIMITS			GRAIN SIZE					K_v (cm/s)
			LL	PL	PI	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	P200 (%)	
Sandy Lean Clay/Clayey Sand (Weathered Till)											
B-120	15.5	CL	-	-	-	-	-	-	-	-	9.10E-08
B-120	35-40	CL	25	15	10	0.0	41.0	31	28	59.0	-
B-120	45-50	CL	-	-	-	-	-	-	-	-	2.00E-07
B-122	95	CL	26	18	8	4.6	21.7	52.9	20.8	73.7	-
B-123	45	SC-SM	18	12	6	19.0	44.6	23.1	13.3	36.4	-
B-211	30-32	CL	-	-	-	-	-	-	-	-	7.4E-06
B-214	30-32	ML	-	-	-	-	-	-	-	-	3.2E-05
MW-102	85-90	CL-ML	20	14	6	7.1	39.6	36.5	16.8	53.3	-
MW-103	90	SC	28	18	10	34.7	43.6	11.3	10.4	21.7	-
MW-205	41-42	CL-ML	21	14	7	3.1	41.5	36.2	19.2	55.4	-
MW-205	25-27	CL	-	-	-	-	-	-	-	-	2.9E-08
MW-210	30-32	CL	-	-	-	-	-	-	-	-	8.5E-07
MW-210A	40-45	CL	29	16	13	0.0	19.0	32.6	48.4	81.0	-
Minimum			18.0	12.0	6.0	0.0	19.0	11.3	10.4	21.7	2.90E-08
Maximum			29.0	18.0	13.0	34.7	44.6	52.9	48.4	81.0	3.20E-05
Mean			23.9	15.3	8.6	9.8	35.9	31.9	22.4	54.4	6.77E-06
Standard Deviation			3.9	2.1	2.4	11.8	10.0	11.9	11.8	18.9	1.16E-05

TETRA TECH

Table 5-2 (continued)
Summary Of Laboratory Soil Testing Results
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

BORING ID	SAMPLE DEPTH (FEET)	USCS GROUP SYMBOL	ATTERBERG LIMITS			GRAIN SIZE					K_v (cm/s)
			LL	PL	PI	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	P200 (%)	
Clay (Lacustrine)											
B-25	15-17	CL	30	18	12	2.8	13.0	47.3	36.9	84.2	-
B-25	20-22	CL	35	21	14	0.0	11.1	58	30.9	88.9	-
OW-27	17-19	CL	24	15	9	0.0	20.6	52.6	26.8	79.4	-
MW-204A	109-110	CL	46.0	23.0	23.0	0.0	0.8	52.6	46.6	99.2	-
MW-204A	119-120	CL	27.0	19.0	8.0	0.1	2.0	76.5	21.4	97.9	-
Minimum			24.0	15.0	8.0	0.0	0.8	47.3	21.4	79.4	-
Maximum			46.0	23.0	23.0	2.8	20.6	76.5	46.6	99.2	-
Mean			32.4	19.2	13.2	0.6	9.5	57.4	32.5	89.9	-
Standard Deviation			7.7	2.7	5.3	1.1	7.3	10.1	8.7	7.7	-

BORING ID	SAMPLE DEPTH (FEET)	USCS GROUP SYMBOL	ATTERBERG LIMITS			GRAIN SIZE					K_v (cm/s)
			LL	PL	PI	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	P200 (%)	
Sand (Outwash)											
MW-01A	79-81	SP	NV	NP	NP	0.0	95.2	-	-	4.6	5.80E-03
MW-01AR	85-86	SM	NV	NP	NP	0.0	81.5	13.5	5	18.5	-
MW-01AR	120-121	GW-GM	20	18	2	47.5	40.5	7.2	4.8	12.0	-
MW-06	51.5-52, 55-57	SP-SM	NV	NP	NP	9.3	80.2	6.5	4	10.5	-
MW-10C	70-72, 75-77	SP	-	-	-	3.4	92.7	1.1	2.8	3.9	-
MW-11C	95-97	SP	-	-	-	0.0	97.4	1.3	1.3	2.6	-
MW-101A	122	SM	NV	NP	NP	3.3	64.9	25.7	6.1	31.8	-
MW-101A	94	GW	-	-	-	78.9	18.6	1.4	1.1	2.5	-
MW-102	96	SP-SM	NV	NP	NP	1.5	88.5	5	5	10.0	-
MW-103	95-100	SM	NV	NP	NP	9.2	73.8	10.7	6.3	17.0	-
MW-105A	100	SP-SM	NV	NP	NP	0.4	88.7	5.3	5.6	10.9	-
MW-105A	130	SP-SM	NV	NP	NP	7.8	82.9	5.9	3.4	9.3	-
MW-106A	119-120	SP-SM	NV	NP	NP	0.5	90.1	4.2	5.2	9.4	-
MW-108	78-80	SM	NV	NP	NP	0.0	85.8	7.3	6.9	14.2	-
MW-109A	89-90	SP-SM	NV	NP	NP	43.7	50.6	3.7	2	5.7	-
MW-109A	119-120	SP	NV	NP	NP	0.1	95.8	3.6	0.5	4.1	-
MW-201A	166-167	GP	NV	NP	NP	69.6	27.0	2.9	0.5	3.4	-
MW-202	97-98	GP	NV	NP	NP	48.6	47.9	2.9	0.6	3.5	-
MW-202A	128-129	SP-SM	NV	NP	NP	32.0	60.9	6.9	0.2	7.1	-
MW-204A	122-123	SP	NV	NP	NP	32.6	64.6	2.2	0.6	2.8	-
MW-206	94-95	SP-SM	NV	NP	NP	1.1	91.2	5	2.7	7.7	-
MW-206A	126-127	SP	NV	NP	NP	9.4	87.6	2	1.0	3.0	-
MW-207	135-136	SP-SM	NV	NP	NP	18.7	74.2	5.6	1.5	7.1	-
MW-210A	136-137	SP-SM	NV	NP	NP	3.7	86.7	8.8	0.8	9.6	-
Minimum			20.0	18.0	2.0	0.0	18.6	1.1	0.2	2.5	5.80E-03
Maximum			20.0	18.0	2.0	78.9	97.4	25.7	6.9	31.8	5.80E-03
Mean			20.0	18.0	2.0	17.6	73.6	6.0	3.0	8.8	5.80E-03
Standard Deviation			0.0	0.0	0.0	23.3	21.8	5.2	2.2	6.5	0.00E+00

TETRA TECH

Table 5-2 (continued)
Summary Of Laboratory Soil Testing Results
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

BORING ID	SAMPLE DEPTH (FEET)	USCS GROUP SYMBOL	ATTERBERG LIMITS			GRAIN SIZE					K_v (cm/s)
			LL	PL	PI	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	P200 (%)	
Sandstone											
MW-10C	149	SW-SM	NV	NP	NP	32.4	61.8	3.1	2.7	5.8	-
MW-11C	160-170	CL	34	15.0	19	3.7	33.7	18.6	44	62.6	-
Minimum			34.0	15.0	19.0	3.7	33.7	3.1	2.7	5.8	-
Maximum			34.0	15.0	19.0	32.4	61.8	18.6	44.0	62.6	-
Mean			34.0	15.0	19.0	18.1	47.8	10.9	23.4	34.2	-
Standard Deviation			0.0	0.0	0.0	14.4	14.1	7.8	20.7	28.4	-

Prepared by: LD Checked by: AH/LS

Notes:
1. Refer to Appendix J for soil test data.
2. (-) indicate this data was not tested or provided by laboratory during analysis
3. NP = nonplastic
4. LL = liquid limit
5. PL = plasticity limit
6. PI = plasticity index
7. K_v = laboratory vertical hydraulic conductivity
8. USCS = Unified Soil Classification System

TETRA TECH

Table 5-3
Results of Field Hydraulic Conductivity Tests
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

MONITORING POINT ID	FIELD HYDRAULIC CONDUCTIVITY TEST RESULTS (cm/s)	COMMENTS
Silty Sand (Till)		
MW02	1.70E-05	Slug Test
MW03	6.40E-04	Slug Test
MW04	8.80E-04	Slug Test
MW07	9.80E-05	Slug Test
MW09A	9.20E-05	Slug Test
MW11A	1.00E-04	Slug Test
MW12A	2.70E-04	Slug Test
MW101	1.70E-04	Slug Test
MW104	3.70E-04	Slug Test
MW106	3.10E-03	Slug Test
MW107	1.90E-05	Slug Test
MW-201	1.88E-03	Slug Test
MW-203	2.83E-06	Slug Test
MW-204	1.08E-04	Slug Test
MW-205	4.93E-06	Slug Test
MW-209	2.72E-03	Slug Test
MW-210	2.54E-03	Slug Test
Minimum	2.83E-06	
Maximum	3.10E-03	
Geometric Mean	1.77E-04	
Standard Deviation	1.05E-03	
Clay (Lacustrine)		
MW9AA	2.30E-04	Slug Test
OW27	1.60E-06	Slug Test
Minimum	1.60E-06	
Maximum	2.30E-04	
Geometric Mean	1.92E-05	
Standard Deviation	1.27E-04	
Sand (Outwash)		
MW04A	4.50E-05	Slug Test
MW05	7.30E-03	Slug Test
MW08A	8.90E-04	Slug Test
MW08B	9.60E-02	Slug Test
MW01	4.30E-04	Slug Test
MW01A	2.50E-03	Slug Test
MW01R	8.10E-04	Slug Test

TETRA TECH

Table 5-3 (Continued)
Results of Field Hydraulic Conductivity Tests
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

MONITORING POINT ID	FIELD HYDRAULIC CONDUCTIVITY TEST RESULTS (cm/s)	COMMENTS
Sand (Outwash) ***continued***		
MW01AR	8.10E-03	Slug Test
MW06	1.60E-03	Slug Test
MW10A	5.40E-04	Slug Test
MW101A	2.90E-02	Slug Test
MW102	8.40E-03	Slug Test
MW103	3.60E-03	Slug Test
MW105	7.60E-03	Slug Test
MW105A	3.60E-03	Slug Test
MW106A	1.10E-01	Slug Test
MW108	4.80E-03	Slug Test
MW109	1.00E-02	Slug Test
MW109A	1.10E-01	Slug Test
MW-201A	3.03E-02	Slug Test
MW-202	1.46E-02	Slug Test
MW-202A	3.37E-02	Slug Test
MW-204A	1.21E-01	Slug Test
MW-206	5.05E-03	Slug Test
MW-206A	2.62E-02	Slug Test
MW-207	5.30E-03	Slug Test
MW-208	3.35E-03	Slug Test
MW-210A	1.11E-02	Slug Test
Minimum	4.50E-05	
Maximum	1.21E-01	
Geometric Mean	6.66E-03	
Standard Deviation	3.65E-02	
Sandstone		
MW09C	4.10E-03	Slug Test
MW10C	4.20E-03	Slug Test
MW11C	6.20E-03	Slug Test
Minimum	4.10E-03	
Maximum	6.20E-03	
Geometric Mean	4.74E-03	
Standard Deviation	9.68E-04	

Prepared by: LD Checked By: AH/LS

Notes:

1. Kh = field horizontal hydraulic conductivity
2. Hydraulic Conductivity Test Data can be found in Appendix K of the Northern Expansion No. 2 FR.

Table 5-4
Historical Groundwater and Surface Water Elevation Data
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Monitoring Point ID	Well Type	Well Construction Date	Point Status	Well Abandonment Date	Water Elevation (ft-MSL)																				
					Round 8 04/07/2025	Round 7 1/28/2025	Round 6 12/17/2024	Round 5 11/12/2024	Round 4 9/24/2024	Round 3 8/21/2024	Round 2 7/15/2024	Round 1 5/15/2024	4/17-4/18/2024	10/11/2023	04/25/2023	10/18/2022	04/19/2022	10/05/2021	7/14/2021	04/06/2021	10/13/2020	04/21/2020	10/15/2019	04/16/2019	10/16/2018	04/24/2018
Groundwater																									
MW-1	WT	06/07/91	Abandoned	09/11/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1R	WT	03/28/00	Abandoned	04/03/24	-	-	-	-	-	-	-	-	-	1135.11	1134.97	1135.27	1135.80	1136.65	-	1138.07	1138.32	1137.74	1136.98	1136.54	1136.83	1137.64
MW-1RR	WT	04/04/24	Active	-	1135.22	1135.43	1135.94	1135.23	1135.56	1135.22	1135.46	1135.04	1135.13	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1A	PZ	06/11/91	Abandoned	09/11/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1AR	PZ	03/27/00	Abandoned	04/02/24	-	-	-	-	-	-	-	-	-	1135.01	1134.99	1135.27	1135.78	1136.65	-	1138.03	1138.35	1137.75	1136.82	1136.58	1136.86	1137.67
MW-1ARR	PZ	04/04/24	Active	-	1135.09	1135.31	1135.86	1135.20	1135.47	1135.14	1135.37	1134.94	1135.05	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	WT	06/12/91	Abandoned	09/25/18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1135.25
MW-2R	WT	09/26/18	Active	-	1132.73	1133.03	1133.34	1132.71	1133.01	1132.70	1132.92	1132.51	1132.84	1132.71	1132.70	1133.00	1133.18	1134.35	-	1135.70	1135.97	1135.38	1134.66	1134.24	1134.46	-
MW-4	WT	06/24/91	Active	-	1132.24	1132.50	1132.95	1132.37	1132.63	1132.30	1132.58	1132.16	1132.48	1132.43	1132.29	1132.60	1132.95	1133.88	-	1135.25	1135.47	1134.90	1134.33	1133.72	1134.02	1134.78
MW-4A	PZ	06/25/91	Active	-	1132.29	1132.53	1133.03	1132.44	1132.66	1132.38	1132.73	1132.18	1132.63	1131.51	1132.36	1132.51	1132.96	1134.00	1134.79	1135.36	1135.69	1135.11	1134.38	1133.99	1134.13	1134.99
MW-6	WT	08/22/91	Abandoned	08/07/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	WT	08/28/91	Abandoned	08/07/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-7C	PZ	08/25/93	Abandoned	08/07/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-8A	WT	09/13/91	Abandoned	08/07/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-8B	PZ	09/11/91	Abandoned	08/07/02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9A	WT	09/06/91	Abandoned	05/11/94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9AA	WT	09/23/91	Abandoned	05/10/94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9C	PZ	09/05/91	Abandoned	05/12/94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-10A	WT	08/19/91	Abandoned	09/13/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-10C	PZ	08/16/91	Abandoned	09/12/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11A	WT	09/16/91	Abandoned	09/25/18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1135.73
MW-11AR	WT	09/27/18	Active	-	1133.02	1133.32	1133.78	1133.17	1133.31	1133.11	1133.38	1132.93	1133.07	1133.21	1133.13	1133.34	1133.73	1134.73	-	1136.19	1136.35	1135.83	1135.10	1134.70	1135.00	-
MW-11C	PZ	09/24/91	Abandoned	03/16/24	-	-	-	-	-	-	-	-	-	1132.94	1132.87	1133.04	1133.51	1134.42	-	1135.85	1136.06	1135.52	1134.83	1134.34	1134.60	1135.35
MW-11CR	PZ	04/06/24	Active	-	1133.00	1133.25	1133.72	1133.12	1133.22	1133.06	1133.28	1132.88	1133.02	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-12A	WT	08/17/93	Abandoned	03/16/24	-	-	-	-	-	-	-	-	-	1132.38	1132.37	1132.67	1133.07	1133.97	-	1135.40	1135.53	1135.03	1134.37	1133.92	1134.13	1134.87
MW-12AR	WT	04/07/24	Active	-	1132.41	1132.61	1133.07	1132.53	1132.67	1132.49	1132.72	1132.35	1132.37	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-27	WT	03/04/92	Abandoned	05/09/94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-29	WT	03/04/92	Abandoned	05/09/94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-31	WT	03/04/92	Abandoned	05/09/94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-101	WT	03/20/00	Active	-	1139.39	1139.87	1140.07	1139.47	1139.70	1139.33	1139.49	1139.15	1139.50	1139.68	1139.47	1139.81	1140.41	1141.39	-	1142.85	1143.06	1142.31	1141.80	1141.43	1141.72	1142.65
MW-101A	PZ	03/20/00	Active	-	1139.19	1139.45	1139.8	1139.36	1139.51	1139.19	1139.27	1138.99	1139.15	1139.48	1139.41	1139.71	1140.15	1141.13	-	1142.51	1142.85	1142.11	1141.11	1140.88	1141.17	1142.02
MW-102	WT	03/22/00	Active	-	**	1138.97	1138.67	1138.51	1138.69	1138.14	1138.26	1138.00	-	1138.57	1138.46	1138.76	1139.14	1140.20	-	1141.64	1141.86	1141.26	1140.40	1139.54	1140.12	1140.96
MW-103	WT	03/24/00	Abandoned	03/19/24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-103R	WT	03/20/24	Active	-	1136.49	1137.28	1136.74	1136.51	1136.71	1136.35	1136.60	1136.30	1136.19	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-104	WT	03/16/00	Active	-	1139.02	1139.20	1139.59	1139.13	1139.31	1139.02	1139.12	1138.80	1139.11	1139.21	1139.12	1139.42	1140.02	1140.90	-	1142.22	1142.47	1141.97	1141.03	1140.32	1140.82	1141.68
MW-105	WT	03/16/00	Abandoned	03/02/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-105A	PZ	03/15/00	Abandoned	03/01/04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-106	WT	03/21/00	Active	-	1135.55	1135.73	1136.18	1135.57	1135.77	1135.47	1135.67	1135.33	1135.66	1135.64	1135.62	1135.87	1136.33	1137.33	-	1138.79	1139.02	1138.37	1137.63	1137.17	1137.48	1138.33
MW-106A	PZ	03/20/00	Active	-	1135.58	1135.74	1136.19	1135.59	1135.82	1135.49	1135.66	1135.39	1135.67	1135.74	1135.59	1135.97	1136.38	1137.32	-	1138.82	1138.98	1138.42	1137.59	1137.25	1137.52	1138.38
MW-107	WT	03/14/00	Active	-	1138.23	1138.43	1139.00	1138.61	1138.80	1138.59	1138.63	1138.23	1138.39	1138.52	1138.40	1138.78	1139.13	1140.09	-	1141.29	1141.79	1141.13	1140.39	1139.98	1140.09	1140.89
MW-108	WT	03/23/00	Abandoned	09/10/01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-109	WT	03/23/00	Active	-	1135.61	1135.82	1136.31	1135.66	1135.92	1135.61	1135.84	1135.44	1135.80	1135.79	1135.67	1135.98	1136.47	1137.31	-	1138.79	1139.01	1138.42	1137.67	1137.22	1137.52	1138.38
MW-109A	PZ	03/22/00	Active	-	1135.62	1135.78	1136.32	1135.64	1135.94	1135.58	1135.84	1135.44	1135.80	1135.73	1135.64	1135.91	1136.44	1137.33	-	1138.78	1138.99	1138.42	1137.66	1137.24	1137.50	1138.34
MW-110	WT	09/25/01	Active	-	1132.59	1133.46	1133.51	1133.04	1133.39	1133.05	1133.46	1132.82	1132.48	1132.96	1132.71	1132.96	1133.29	1134.32	-	1135.49	1135.96	1135.42	1134.84	1134.16	1134.63	1135.16
MW-201	WT	02/17/24	Active	-	1137.06	1137.84	1137.18	1137.04	1137.28	1136.92	1136.94	1136.84	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-201A	PZ	02/16/24	Active	-	1137.03	1137.80	1137.18	1137.03	1137.13	1136.80	1136.91	1136.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202	WT	03/06/24	Active	-	1138.54	1139.32	1138.7	1138.57	1138.74	1138.39	1138.62	1138.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202A	PZ	03/04/24	Active	-	1138.28	1139.13	1138.49	1138.35	1138.49	1138.17	1138.38	1138.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-203	WT	02/02/24	Active	-	1141.21	1141.79	1141.76	1141.02	1141.17	1140.42	1141.05	1140.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204	WT	03/03/24	Active	-	1140.16	1141.10	1140.41	1140.06	1140.33	1139.84	1140.19	1139.89	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204A	PZ	03/01/24	Active	-	1139.85	1140.68	1140.02	1139.79	1140.01	1139.58	1139.77	1139.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-205	WT	01/31/24	Active	-	1142.25	1144.02	1142.88	1142.17	1142.34	1141.88	1142.13	1141.87	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206	WT	02/29/24	Active	-	1138.92	1139.78	1139.13	1138.85	1139.07	1138.70	1138.89	1138.70	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206A	PZ	02/26/24	Active	-	1138.94	1139.76	1139.06	1138.85	1139.05	1138.66	1138.86	1138.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-207	WT	02/06/24	Active	-	1138.10	1138.94	1138.23	1138.04	1138.25	1137.88	1138.03	1137.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-208	WT	02/04/24	Active	-	1138.97	1139.81	1139.05	1138.83	1139.06	1138.67	1138.80	1138.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-209	WT	01/19/24	Active	-	1141.10	1141.92	1141.22	1141.30	1141.18	1140.79	1140.98	1140.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210	WT	01/29/24	Active	-	1145.23	1146.03	1145.39	1145.22	1145.32	1144.94	1145.12	1145.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210A	PZ	01/23/24	Active	-	1145.12	1145.89	1145.26	1145.07	1145.17	1144.81	1144.99	1144.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surface Water																										
TYMAN-1	SG	Unknown	Abandoned	Unknown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED-01	SG	01/01/95	Active	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-02	SG	01/01/91	Active	-	1213.89	1213.91	1213.75	1213.64	1214.00	1213.95	1213.87	1213.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-03	SG	01/01/95	Active	-	1144.28	1144.22	1144.34	1144.29	1144.24	1144.23	1144.20	1144.28	1150.19	-	1148.10	-	1147.80	-	-	1148.46	-	1148.90	-	1149.05	-	1149.00
SP-04	SG	01/01/95	Abandoned	04/24/24	-	-	-	-	-	-	-	-	1156.78	-	1154.27	-	1154.67	-	-	1155.20	-	1155.52	-	1155.82	-	1156.04
SP-04R	SG	04/24/24	Active	-	1155.82	1155.78	1155.94	1155.88	1155.85	1155.82	1155.85	1155.91	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-05	SG	04/24/24	Active	-	1231.21	1231.23	1231.27	1231.21	1231.21	1231.21	1231.23	DRY	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5-4 (Continued)
Historical Groundwater and Surface Water Elevation Data
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Monitoring Point ID	Well Type	Water Elevation (ft-MSL)																							
		10/11/2017	4/11-4/12/2017	10/18/2016	4/19-4/20/2016	10/21/2015	07/15/2015	04/22/2015	1/13/2015	10/15/2014	04/23/2014	10/09/2013	04/24/2013	10/24/2012	7/16/2012	04/11/2012	10/04/2011	04/27/2011	10/13/2010	07/13/10	04/13/2010	10/07/2009	07/07/2009	04/21/2009	10/15/2008	04/15/2008
Groundwater																									
MW-1	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1R	WT	1137.79	1136.90	1136.78	1135.73	1135.06	-	1134.59	-	1133.46	1132.24	1132.65	1133.22	1133.80	-	1134.02	1134.02	1133.59	1131.94	-	1131.59	1131.97	-	1132.50	1132.50	1132.38
MW-1RR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1AR	PZ	1137.74	1136.81	1136.75	1135.01	1135.11	-	1134.52	-	1133.46	1132.23	1132.65	1133.22	1133.81	-	1134.01	1134.03	1133.60	1131.98	-	1131.48	1131.96	-	1132.49	1132.51	1132.35
MW-1ARR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	WT	1136.93	1134.65	1134.44	1133.23	1132.59	1132.13	1132.24	-	1131.13	1130.41	1130.39	1130.86	1131.44	-	1131.69	1131.65	1133.99	1129.79	-	1129.35	1129.69	1129.95	1130.12	1130.07	1129.89
MW-2R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4	WT	1134.92	1134.02	1134.08	1133.04	1132.46	-	1131.98	-	1130.99	1129.73	1130.11	1130.56	1131.10	-	1131.30	1131.40	1130.99	1129.53	-	1129.04	1129.36	-	1129.95	1129.79	1128.75
MW-4A	PZ	1135.09	1134.29	1134.19	1133.17	1132.57	-	1132.20	1131.25	1131.16	1129.86	1130.28	1130.87	1131.25	-	1131.65	1131.63	1131.17	1129.76	-	1129.29	1129.59	-	1130.01	1129.95	1129.84
MW-6	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-7C	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-8A	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-8B	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9A	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9AA	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9C	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-10A	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-10C	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11A	WT	1135.87	1135.03	1134.94	1133.85	1133.04	-	1132.83	-	1130.85	1130.48	1130.91	1131.41	1132.00	-	1132.17	1132.25	1131.82	1130.22	-	1129.83	1130.13	-	1130.01	1130.67	1130.50
MW-11AR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11C	PZ	1135.54	1134.68	1134.68	1132.80	1132.92	-	1132.51	-	1131.34	1130.22	1130.61	1131.10	1131.66	-	1131.86	1131.98	1131.60	1130.02	-	1129.54	1129.89	-	1130.49	1130.40	1130.28
MW-11CR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-12A	WT	1134.97	1134.12	1134.07	1133.07	1132.47	1132.01	1132.08	-	1130.97	1129.83	1130.22	1130.67	1131.23	-	1131.43	1131.51	1131.10	1129.59	-	1129.16	1129.48	-	1130.03	1129.98	1129.77
MW-12AR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-27	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-29	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-31	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-101	WT	1142.71	1141.61	1141.45	1140.39	1139.59	-	1139.12	-	1137.83	1136.48	1136.91	1137.46	1138.11	-	1138.35	1138.22	1137.61	1135.93	-	1135.29	1136.10	-	1136.61	1136.63	1136.70
MW-101A	PZ	1142.21	1141.42	1140.91	1139.85	1139.11	-	1138.60	-	1137.45	1136.01	1136.49	1137.01	1137.69	-	1137.96	1137.89	1137.28	1135.64	-	1135.32	1135.70	-	1136.28	1136.28	1136.17
MW-102	WT	-	1138.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-103	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-103R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-104	WT	1141.91	1140.90	1140.56	1139.82	1138.88	-	1138.37	-	1137.32	1135.82	1136.31	1136.79	1137.41	-	1137.70	1137.66	1137.05	1135.51	-	1135.05	1135.42	-	1135.99	1136.00	1135.97
MW-105	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-105A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-106	WT	1138.53	1137.58	1137.34	1136.30	1135.63	-	1135.10	-	1133.94	1132.73	1133.19	1133.75	1134.38	-	1134.59	1134.59	1134.07	1132.37	-	1131.99	1132.47	-	1133.00	1132.97	1132.83
MW-106A	PZ	1138.58	1137.66	1137.39	1136.35	1135.65	-	1135.13	-	1133.96	1132.78	1133.21	1133.78	1134.42	1134.96	1134.63	1134.62	1134.12	1132.45	-	1132.09	1132.52	-	1133.05	1133.03	1132.87
MW-107	WT	1141.13	1140.09	1139.89	1139.00	1138.19	-	1137.75	-	1136.98	1135.29	1135.78	1136.18	1136.74	-	1137.03	1137.03	1136.56	1132.10	-	1134.81	1134.99	-	1135.46	1135.60	1135.43
MW-108	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-109	WT	1138.52	1137.61	1137.42	1136.56	1135.72	-	1135.22	-	1134.10	1132.86	1133.29	1133.86	1134.43	-	1134.69	1134.66	1134.15	1132.57	-	1132.24	1132.63	-	1133.09	1133.09	1132.92
MW-109A	PZ	1138.51	1137.58	1137.38	1136.52	1135.68	-	1135.18	-	1134.08	1132.81	1133.28	1133.83	1134.44	-	1134.68	1134.62	1134.14	1132.53	-	1132.21	1132.59	-	1133.11	1133.10	1132.93
MW-110	WT	1135.46	1134.46	1134.76	1133.66	1133.11	-	1132.63	-	1131.92	1130.29	1130.78	1130.97	1131.63	-	1131.92	1132.05	1131.59	1130.42	-	1129.72	1130.16	-	1130.34	1130.56	1130.18
MW-201	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-201A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-203	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-205	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-207	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-208	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-209	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surface Water																										
TYMAN-1	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED-01	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-02	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-03	SG	-	1147.75	-	1147.37	-	-	1147.55	-	-	1147.75	-	1149.00	-	-	1148.01	-	1148.41	-	1146.95	-	-	-	1147.60	-	1149.15
SP-04	SG	-	1154.62	-	1154.24	-	-	1154.52	-	-	1154.02	-	1155.38	-	-	1154.56	-	1154.94	-	1153.42	-	-	-	1154.37	-	1155.42
SP-04R	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-05	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5-4 (Continued)
Historical Groundwater and Surface Water Elevation Data
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Monitoring Point ID	Well Type	Water Elevation (ft-MSL)																							
		01/15/2008	10/02/2007	04/19/2007	10/18/2006	04/11/2006	10/04/2005	4/19-4/20/2005	10/19/2004	04/20/2004	10/15/2003	07/09/2003	04/24/2003	01/07/2003	10/15/2002	07/24/2002	04/09/2002	01/08/2002	10/11/2001	09/05/2001	07/10/2001	04/05/2001	01/16/2001	12/19/2000	11/09/2000	10/03/2000
Groundwater																									
MW-1	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1136.11	1136.08	1135.75	1135.61	1135.75	1135.95	1135.81
MW-1R	WT	-	1132.62	1132.81	1133.15	1133.86	1133.74	1134.42	1134.79	1135.49	1136.52	-	1136.89	-	1136.62	-	1136.12	1136.40	1135.54	-	1135.46	1135.15	1135.00	1135.12	1135.33	1135.14
MW-1RR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1136.09	1136.06	1135.73	1135.61	1135.75	1135.91	1135.78
MW-1AR	PZ	-	1132.61	1132.84	1133.15	1133.80	1133.75	1134.41	1134.74	1135.47	1136.53	-	1136.93	-	1136.65	-	1136.13	1136.44	1135.53	-	1135.49	1135.14	1135.03	1135.21	1135.38	1135.13
MW-1ARR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	WT	-	1128.03	1130.55	1130.88	1131.43	1129.15	1132.09	1132.29	1133.04	1133.97	-	1134.43	-	1134.19	-	1133.67	1133.85	1133.09	-	1133.01	1132.59	1132.47	1132.65	1132.80	1132.57
MW-2R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4	WT	-	1129.92	1130.14	1130.33	1131.08	1131.08	1131.76	1131.92	1133.46	1133.57	-	1133.97	-	1133.80	-	1133.08	1133.60	1132.81	-	1132.67	1132.30	1132.18	1132.40	1132.43	1132.24
MW-4A	PZ	-	1129.97	1130.19	1130.59	1131.29	1131.09	1131.83	1131.99	1132.71	1136.59	-	1134.03	-	1133.79	-	1133.06	1133.60	1132.79	-	1132.63	1132.31	1132.15	1132.37	1132.49	1132.32
MW-6	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1139.14	1139.40	1138.62	-	1138.48	1138.02	1137.96	1138.14	1138.31	1138.23
MW-7	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-7C	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1133.65	1133.36	1132.59	-	1132.40	1132.67	1131.88	1131.57	1132.17	1132.09
MW-8A	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1134.41	1134.99	1134.21	-	1134.03	1133.79	1133.52	1133.65	1133.79	1133.70
MW-8B	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1134.56	1135.06	1134.26	-	1134.08	1133.80	1133.60	1133.82	1134.00	1133.78
MW-9A	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9AA	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9C	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-10A	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1136.98	1136.92	1136.59	1136.51	1136.69	1136.85	1136.68
MW-10C	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1136.84	1136.80	1136.36	1136.28	1136.44	1136.62	1136.47
MW-11A	WT	-	1130.81	1131.03	1131.27	1131.95	1131.83	1132.59	1132.77	1133.53	1134.50	-	1134.94	-	1134.67	-	1134.15	1134.41	1133.57	-	1133.43	1132.95	1132.88	1133.15	1133.28	1133.02
MW-11AR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11C	PZ	-	1130.80	1130.73	1131.01	1131.68	1131.58	1132.28	1132.50	1133.24	1134.17	-	1134.66	-	1134.40	-	1133.88	1134.10	1133.28	-	1133.14	1132.72	1132.60	1132.80	1132.98	1132.76
MW-11CR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-12A	WT	-	1130.12	1130.27	1130.57	1131.21	1131.13	1131.83	1132.06	1132.73	1133.67	-	1134.07	-	1133.80	-	1132.87	1133.53	1132.81	-	1132.67	1132.35	1132.21	1132.35	1132.47	1132.31
MW-12AR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-27	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-29	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-31	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-101	WT	1136.52	-	1136.98	1137.37	1138.02	1138.09	1138.88	1139.28	1140.23	1141.30	-	1141.65	-	1141.12	-	1140.78	1140.98	1140.06	-	1139.87	1139.55	1139.36	1139.54	1139.68	1139.90
MW-101A	PZ	1136.22	-	1136.82	1137.13	1137.88	1137.91	1138.64	1138.99	1139.87	1140.84	-	1141.27	-	1140.79	-	1140.34	1140.55	1139.64	-	1139.51	1139.23	1139.08	1139.24	1139.39	1139.64
MW-102	WT	-	-	-	1136.03	1136.88	-	1137.43	1137.85	1138.80	1139.76	-	1139.99	-	1139.53	-	1139.12	1139.38	1138.48	-	1138.27	1138.05	1137.82	1138.08	1138.30	1138.48
MW-103	WT	-	-	-	-	-	-	-	-	1137.00	1137.94	-	1138.29	-	1137.89	-	1137.34	1137.61	1136.80	-	1136.62	1136.33	1136.20	1136.44	1136.56	1136.40
MW-103R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-104	WT	-	1136.35	1136.68	1136.90	1137.60	1137.64	1138.32	1138.72	1139.58	1140.52	-	1140.90	-	1140.50	-	1140.02	1140.24	1139.34	-	1139.26	1138.94	1138.84	1139.20	1139.18	1139.40
MW-105	WT	-	-	-	-	-	-	-	-	-	1138.78	-	1138.57	-	1138.12	-	1137.70	1137.96	1137.10	-	1137.32	1136.70	1136.52	1136.72	1136.89	1137.08
MW-105A	PZ	-	-	-	-	-	-	-	-	-	1138.41	-	1138.82	-	1138.35	-	1137.91	1138.23	1137.33	-	1136.93	1136.91	1136.77	1136.95	1137.14	1137.29
MW-106	WT	-	1133.21	1133.44	1133.73	1134.33	1134.34	1135.02	1135.63	1136.23	1137.17	-	1137.60	-	1137.17	-	1136.73	1137.02	1136.05	-	1135.93	1135.67	1135.50	1135.65	1135.81	1135.63
MW-106A	PZ	-	1133.27	1133.46	1173.76	1134.40	1134.38	1135.08	1135.40	1136.29	1137.20	-	1137.65	-	1137.22	-	1136.70	1136.97	1136.08	-	1135.92	1135.67	1135.50	1135.68	1135.79	1135.60
MW-107	WT	-	1135.75	1136.01	1136.38	1137.00	1137.05	1137.73	1138.17	1138.86	1139.88	-	1140.25	-	1139.89	-	1139.37	1139.60	1139.09	-	1138.82	1138.52	1138.44	1139.05	1138.92	1139.26
MW-108	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1137.18	1137.15	1136.85	1136.70	1136.90	1137.04	1137.30
MW-109	WT	-	1133.24	1133.54	1133.83	1134.44	1134.44	1135.10	1135.48	1136.23	1137.24	-	1137.59	-	1137.24	-	1136.78	1137.02	1136.14	-	1136.06	1135.71	1135.59	1135.71	1135.92	1135.74
MW-109A	PZ	-	1133.23	1133.51	1133.83	1134.41	1134.43	1135.06	1135.46	1136.20	1137.21	-	1137.61	-	1137.21	-	1136.76	1137.06	1136.10	-	1136.04	1135.71	1135.55	1135.74	1135.88	1135.72
MW-110	WT	-	1130.15	1130.72	1130.96	1131.63	1131.44	1132.11	1132.32	1132.94	1133.82	1134.36	1134.35	1134.70	1134.04	1133.59	1133.64	1133.89	1133.19	-	-	-	-	-	-	-
MW-201	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-201A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-203	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-205	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-207	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-208	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-209	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surface Water																										
TYMAN-1	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1205.70	1204.53	1203.92	-	1203.94	1205.63	1205.03	1204.63	1204.01	1204.01
SED-01	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-02	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1215.14	1214.48	1213.29	-	1213.86	1214.38	1213.82	1213.82	1213.86	1213.44
SP-03	SG	-	-	1147.57	-	1147.57	-	1147.95	-	1148.75	-	-	1144.57	-	-	-	-	-	-	-	-	-	1144.49	1144.45	1145.00	1143.30
SP-04	SG	-	-	1153.84	-	1153.96	-	1154.12	-	1155.62	-	-	1155.28	-	-	-	-	-	-	-	-	-	1154.88	1154.84	1155.34	1153.96
SP-04R	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-05	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5-4 (Continued)
Historical Groundwater and Surface Water Elevation Data
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Monitoring Point ID	Well Type	Water Elevation (ft-MSL)																							
		09/25/2000	08/22/2000	07/19/2000	06/13/2000	05/09/2000	4/05-4/06/2000	10/19/1999	04/22/1999	10/15/1998	04/22/1998	10/08/1997	04/17/1997	01/15/1997	10/09/1996	07/18/1996	04/17/1996	01/09/1996	10/10/1995	07/18/1995	04/25/1995	01/09/1995	07/28/1994	6/22-6/23/1994	5/19-5/20/1994	4/12-4/13/1994
Groundwater																									
MW-1	WT	1135.91	1135.91	1135.62	1135.73	1135.57	1136.06	1135.86	1136.01	1136.71	1137.19	1136.88	1136.77	1137.49	1136.84	1135.93	1135.61	1135.81	1135.96	1136.01	1136.11	1135.52	1135.82	1136.08	1136.05	1136.13
MW-1R	WT	1135.22	1135.20	1134.98	1135.10	1134.88	1135.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1RR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1A	PZ	1135.90	1135.83	1135.60	1135.63	1135.47	1136.03	1135.83	1135.98	1136.73	1137.08	1136.87	1136.73	1137.53	1136.86	1135.85	1136.04	1135.83	1135.93	1136.01	1136.11	1135.47	1135.81	1136.08	1136.04	1136.17
MW-1AR	PZ	1135.29	1135.23	1135.00	1135.13	1134.93	1135.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1ARR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	WT	1132.57	1132.64	1132.50	1132.57	1132.47	1132.76	1132.46	1132.80	1133.54	1133.95	1133.85	1132.87	1134.60	1133.16	1134.02	1133.24	1133.07	1132.03	1132.70	1132.41	1132.46	1132.63	1132.87	1132.82	1132.84
MW-2R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4	WT	1132.31	1132.40	1132.23	1132.36	1131.97	1132.60	1132.32	1132.45	1133.02	1133.55	1133.36	1132.51	1134.35	1132.70	1133.65	1132.89	1132.58	1131.93	1132.29	1132.07	1132.12	1132.31	1132.54	1132.49	1132.68
MW-4A	PZ	1132.32	1132.41	1132.80	1132.37	1132.31	1132.61	1132.35	1132.46	1133.02	1133.57	1133.47	1132.52	1134.26	1132.69	1133.65	1132.96	1132.61	1131.92	1132.24	1132.06	1132.11	1132.29	1132.54	1132.49	1132.69
MW-6	WT	1138.25	1138.24	1138.07	1138.02	1137.90	1137.47	1137.37	1137.80	1138.27	1137.89	1139.10	1139.12	1139.64	1138.94	1138.16	1138.37	1138.05	1138.13	1138.17	1138.24	1137.70	1137.79	1138.02	1137.99	1138.07
MW-7	WT	-	-	-	-	-	-	-	-	-	-	-	1132.20	1134.13	1132.43	1133.43	1132.74	1132.40	1130.93	1132.20	1131.91	1132.02	1132.25	1132.46	1132.60	1132.56
MW-7C	PZ	1132.03	1132.17	1131.79	1131.63	1131.91	1131.90	1131.67	1132.05	1132.68	1132.98	1132.88	1131.98	1133.45	1132.28	1133.14	1132.55	1132.38	1133.02	1132.04	1131.76	1131.79	1132.06	1132.21	1132.19	1132.11
MW-8A	WT	1133.74	1133.77	1133.61	1133.59	1133.49	1133.76	1133.80	1134.03	1134.71	1135.08	1134.84	1134.73	1134.87	1134.95	1135.57	1134.12	1133.89	1133.97	1134.03	1134.12	1133.46	1133.74	1134.00	1133.91	1134.16
MW-8B	PZ	1133.82	1133.86	1133.66	1133.68	1133.56	1133.77	1133.85	1134.09	1134.84	1135.04	1134.92	1134.78	1135.88	1135.02	1135.46	1135.16	1133.96	1134.02	1134.08	1134.16	1133.50	1133.77	1134.02	1133.93	1134.17
MW-9A	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9AA	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-9C	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-10A	WT	1136.79	1136.75	1136.61	1136.67	1136.53	1136.78	1136.74	1136.79	1137.45	1137.95	1137.78	1137.59	1138.73	1137.75	1136.84	1136.87	1136.78	1136.84	1136.85	1136.91	1136.37	1136.57	1136.83	1136.89	1136.90
MW-10C	PZ	1136.56	1136.60	1136.42	1136.48	1136.38	1136.54	1136.52	1136.67	1137.23	1134.52	1137.55	1137.42	1138.46	1137.54	1136.67	1136.74	1136.68	1136.66	1136.70	1136.77	1136.18	1136.40	1136.63	1136.62	1136.67
MW-11A	WT	1133.07	1133.15	1132.92	1133.01	1132.91	1132.98	1132.82	1133.13	1133.83	1134.14	1134.12	1134.27	1135.07	1133.46	1134.41	1133.56	1133.23	1132.31	1133.43	1133.48	1132.85	1133.09	1133.37	1133.29	1133.53
MW-11AR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11C	PZ	1132.84	1132.88	1132.64	1132.70	1132.62	1132.69	1132.55	1132.84	1133.46	1133.82	1133.82	1133.96	1134.68	1133.10	1133.98	1133.27	1132.94	1131.95	1133.22	1133.29	1132.65	1132.89	1133.15	1133.07	1133.30
MW-11CR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-12A	WT	1132.35	1132.35	1132.20	1132.25	1132.19	1132.44	1132.06	1132.29	1133.04	1133.47	1133.40	1132.39	1134.26	1132.48	1133.53	1132.80	1132.46	1130.63	1132.39	1132.14	1132.23	1132.45	1132.68	1132.63	1132.82
MW-12AR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-27	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-29	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-31	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-101	WT	1139.55	1139.60	1139.34	1139.64	1139.53	1140.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-101A	PZ	1139.30	1139.32	1139.06	1139.28	1139.18	1139.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-102	WT	1138.16	1138.20	1137.87	1138.17	1138.04	1138.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-103	WT	1136.48	1136.49	1136.14	1136.52	1136.36	1136.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-103R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-104	WT	1139.07	1139.04	1138.85	1139.04	1138.90	1139.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-105	WT	1136.80	1136.76	1136.42	1136.76	1136.58	1137.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-105A	PZ	1137.05	1137.01	1136.67	1136.99	1136.83	1137.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-106	WT	1135.71	1135.75	1135.48	1135.73	1135.55	1136.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-106A	PZ	1135.74	1135.70	1135.51	1135.78	1135.58	1136.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-107	WT	1138.92	1138.91	1138.45	1138.51	1138.27	1138.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-108	WT	1136.98	1136.92	1136.74	1136.81	1136.72	1137.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-109	WT	1135.89	1135.80	1135.59	1135.80	1135.64	1136.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-109A	PZ	1135.84	1135.76	1135.54	1135.80	1135.60	1136.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-110	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-201	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-201A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-203	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-205	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-207	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-208	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-209	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surface Water																										
TYMAN-1	SG	1204.04	1204.20	1204.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED-01	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-02	SG	1213.50	1213.84	1214.24	1214.04	1214.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-03	SG	1144.09	1144.99	1143.19	-	-	1144.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-04	SG	1154.52	1154.72	1154.62	-	-	1154.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-04R	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-05	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5-4 (Continued)
Historical Groundwater and Surface Water Elevation Data
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Monitoring Point ID	Well Type	Water Elevation (ft-MSL)															
		3/21-3/22/1994	2/16-2/17/1994	1/26-1/28/1994	12/14-12/15/1993	8/10-8/11/1993	3/15-3/17/1993	12/28-12/29/1992	9/21-9/23/1992	7/28-7/29/1992	6/22-6/24/1992	3/24-3/26/1992	02/13/1992	01/22/1992	12/18/1991	11/13/1991	10/09/1991
Groundwater																	
MW-1	WT	1135.95	1135.91	1135.76	1135.78	1135.53	1135.47	1135.17	1135.16	1134.94	1134.92	1134.36	1134.21	1134.30	1134.02	1133.65	1133.57
MW-1R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1RR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1A	PZ	1135.97	1135.93	1135.76	1135.78	1135.54	1135.60	1135.18	1135.16	1135.00	1134.97	1134.40	1134.25	1134.35	1134.05	1133.67	1133.57
MW-1AR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-1ARR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-2	WT	1132.81	1132.64	1132.52	1132.81	1132.42	1132.28	1132.07	1132.07	1131.80	1131.84	1131.37	1131.15	1131.28	1130.88	1130.60	1130.65
MW-2R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4	WT	1132.47	1132.40	1132.25	1132.41	1132.14	1132.01	1131.73	1131.74	1131.61	1131.61	1131.14	1130.89	1131.13	1130.71	1130.81	1130.55
MW-4A	PZ	1132.41	1132.39	1132.24	1132.41	1132.18	1132.07	1131.70	1131.74	1131.60	1131.61	1131.16	1130.92	1131.14	1130.73	1130.86	1130.60
MW-6	WT	1137.86	1137.89	1137.75	1137.73	1137.59	1137.37	1137.18	1137.16	1137.05	1137.00	1136.44	1136.25	1136.31	1136.03	1135.83	1135.79
MW-7	WT	1132.40	1132.28	1132.13	1132.28	1132.01	1131.91	1131.67	1131.63	1131.49	1131.46	1131.01	1130.73	1130.97	1130.60	1130.64	1130.40
MW-7C	PZ	1132.23	1131.97	1131.79	1132.21	-	-	-	-	-	-	-	-	-	-	-	-
MW-8A	WT	1133.89	1133.76	1133.62	1133.76	1133.50	1133.46	1138.11	1133.09	1132.88	1132.92	1132.42	1132.18	1132.38	1131.99	1131.87	1131.77
MW-8B	PZ	1133.91	1133.77	1133.71	1133.79	1133.54	1133.50	1138.14	1133.13	1132.90	1132.97	1132.46	1132.21	1132.47	1132.06	1132.00	1131.87
MW-9A	WT	-	-	-	-	1134.98	1134.66	1134.90	1134.56	1134.48	1134.48	1133.97	1133.76	1133.92	1133.46	1133.38	1133.33
MW-9AA	WT	-	-	-	-	1184.44	1183.46	1183.98	1181.87	1183.03	1183.68	1185.83	1183.67	1184.38	1187.03	1185.82	1184.79
MW-9C	PZ	-	-	-	-	1133.58	1133.22	1132.93	1133.06	1133.00	1133.07	1132.58	1132.38	1132.56	1132.19	1132.09	1132.07
MW-10A	WT	1136.72	1136.66	1136.52	1136.51	1136.32	1136.21	1135.91	1135.92	1135.72	1135.73	1135.13	1135.00	1135.12	1134.74	1134.58	1134.45
MW-10C	PZ	1136.53	1136.48	1136.30	1136.41	1136.21	1136.08	1135.77	1135.81	1135.62	1136.46	1135.91	1134.93	1135.04	1134.80	1134.50	1134.30
MW-11A	WT	1133.26	1133.18	1133.01	1133.18	1132.87	1132.84	1132.55	1132.49	1132.36	1132.30	1131.81	1131.46	1131.81	1131.45	1131.46	1131.18
MW-11AR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11C	PZ	1133.02	1132.94	1132.77	1132.96	1132.71	1132.73	1132.30	1132.32	1132.15	1132.13	1131.67	1131.39	1131.76	1131.31	1131.34	1131.10
MW-11CR	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-12A	WT	1132.61	1132.55	1132.38	1132.49	-	-	-	-	-	-	-	-	-	-	-	-
MW-12AR	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OW-27	WT	-	-	-	-	-	1176.08	1176.33	-	-	1176.31	1177.33	-	-	-	-	-
OW-29	WT	-	-	-	-	-	1173.54	1173.57	1173.52	-	1173.59	-	-	-	-	-	-
OW-31	WT	-	-	-	-	-	-	1171.89	-	-	1171.95	-	-	-	-	-	-
MW-101	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-101A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-102	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-103	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-103R	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-104	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-105	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-105A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-106	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-106A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-107	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-108	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-109	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-109A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-110	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-201	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-201A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-202A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-203	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-204A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-205	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-206A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-207	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-208	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-209	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210	WT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-210A	PZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surface Water																	
TYMAN-1	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SED-01	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-02	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-03	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-04	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-04R	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-05	SG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Created By: LD Checked By: AH

Notes:
1. (-) indicates no measurement available
2. (**) Water level attempted but unable to be measured and reported due to groundwater pump stuck inside PVC well casing.
3. Data Source: WDNR GEMS Database and WM Background Monitoring Field Measurements
4. Groundwater monitoring wells MW-3 and MW-5 were abandoned in May 1994 which predates the elevtion data summarized in this table.
5. Staff gauge TYMAN-1 is assumed to be abandoned, but no documentation for construction or abandonment dates were able to be located. Staff gauge SED-01 is located in the south sedimentation basin which has no measureable discharge, so no water levels were reported to the WDNR GEMS database.

Acronyms:

WT Water Table Well
P Piezometer Well
SG Staff Gauge
ft-MSL Feet Above Mean Sea Level
WDNR Wisconsin Department of Natural Resources

TETRA TECH

Table 5-5
Summary Of Horizontal Hydraulic Gradients
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

MONITORING WELL ID	GROUNDWATER ELEVATION (h) (ft MSL)	DELTA h (FEET)	DISTANCE (FEET)	HORIZONTAL HYDRAULIC GRADIENT (FEET/FEET)
MW-202	1139.32	3.59	1256	0.003
MW-106	1135.73			
MW-203	1141.79	2.82	912	0.003
MW-102	1138.97			
MW-203	1141.79	5.97	1996	0.003
MW-109	1135.82			
MW-204	1141.10	1.78	536	0.003
MW-202	1139.32			
MW-204	1141.10	2.13	742	0.003
MW-102	1138.97			
MW-204	1141.10	5.37	1790	0.003
MW-106	1135.73			
MW-205	1144.02	4.70	954	0.005
MW-202	1139.32			
MW-205	1144.02	5.05	1100	0.005
MW-102	1138.97			
MW-206	1139.78	1.94	768	0.003
MW-201	1137.84			
MW-206	1139.78	2.50	1160	0.002
MW-103R	1137.28			
MW-208	1139.81	0.87	324	0.003
MW-207	1138.94			
MW-209	1141.92	2.14	538	0.004
MW-206	1139.78			
MW-209	1141.92	2.98	866	0.003
MW-207	1138.94			
MW-209	1141.92	4.08	1290	0.003
MW-201	1137.84			
MW-210	1146.03	4.93	762	0.006
MW-204	1141.10			
MW-210	1146.03	6.71	1298	0.005
MW-202	1139.32			
			Average	0.004

Notes:

1. Horizontal gradient = Delta h/Distance L

Prepared by: LD Checked by: LS

2. ft MSL = feet above mean sea level

3. Groundwater elevations (ft MSL) from the January 28, 2025 monitoring event were used to calculate the horizontal gradient for the above table.

TETRA TECH

Table 5-6
Summary of Vertical Hydraulic Gradients
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

WELL NEST LOCATION	WELL TYPE	GROUNDWATER ELEVATION (h) (FT AMSL)	REFERENCE POINT (L)[1] (FT AMSL)	DELTA h[2] (FT)	DELTA L[3] (FT)	VERTICAL HYDRAULIC GRADIENT (FT/FT)
January 2025 High Water Levels						
MW-1RR	WT	1135.43	1135.43	0.12	38.73	0.0031
MW-1ARR	P	1135.31	1096.70			
MW-4	WT	1132.50	1132.50	-0.03	35.70	-0.0008
MW-4A	P	1132.53	1096.80			
MW-11AR	WT	1133.32	1133.32	0.07	90.52	0.0008
MW-11CR	PZ	1133.25	1042.80			
MW-101	WT	1139.87	1139.87	0.42	35.87	0.0117
MW-101A	P	1139.45	1104.00			
MW-106	WT	1135.73	1135.73	-0.01	35.33	-0.0003
MW-106A	P	1135.74	1100.40			
MW-109	WT	1135.82	1135.82	0.04	35.62	0.0011
MW-109A	PZ	1135.78	1100.20			
MW-201	WT	1137.84	1137.84	0.04	36.54	0.0011
MW-201A	PZ	1137.80	1101.30			
MW-202	WT	1139.32	1139.32	0.19	37.22	0.0051
MW-202A	PZ	1139.13	1102.10			
MW-204	WT	1141.10	1141.10	0.42	37.10	0.0113
MW-204A	PZ	1140.68	1104.00			
MW-206	WT	1139.78	1139.78	0.02	37.88	0.0005
MW-206A	PZ	1139.76	1101.90			
MW-210	WT	1146.03	1146.03	0.14	42.03	0.0033
MW-210A	PZ	1145.89	1104.00			
					Average	0.0034

Prepared by: LD Checked by: LS

Footnotes:

[1] For water table monitoring wells, reference point (L) is the elevation of the water table.
For piezometers, reference point (L) is the elevation in the middle of the screen.

[2] Delta h is the difference between water table elevation and potentiometric surface elevation.

[3] Delta L is the difference between water table elevation and the elevation of the mid-point of the piezometer screen.

Notes:

1. Vertical gradient = Delta h/Delta L
2. A negative vertical hydraulic gradient indicates upward flow
3. WT = water table well
4. P = piezometer well
5. FT AMSL = feet above mean sea level
6. Elevation Data from Table 5-4
7. Well construction information from WDNR GEMS Database and Appendix I of the Northern Expansion No. 2 FR.

TETRA TECH

Table 5-6 (Continued)
Summary of Vertical Hydraulic Gradients
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

WELL NEST LOCATION	WELL TYPE	GROUNDWATER ELEVATION (h) (FT AMSL)	REFERENCE POINT (L)[1] (FT AMSL)	DELTA h[2] (FT)	DELTA L[3] (FT)	VERTICAL HYDRAULIC GRADIENT (FT/FT)
May 2024 Low Water Levels						
MW-1RR	WT	1135.04	1135.04	0.10	38.34	0.0026
MW-1ARR	P	1134.94	1096.70			
MW-4	WT	1132.16	1132.16	-0.02	35.36	-0.0006
MW-4A	P	1132.18	1096.80			
MW-11AR	WT	1132.93	1132.93	0.05	90.13	0.0006
MW-11CR	PZ	1132.88	1042.80			
MW-101	WT	1139.15	1139.15	0.16	35.15	0.0046
MW-101A	P	1138.99	1104.00			
MW-106	WT	1135.33	1135.33	-0.06	34.93	-0.0017
MW-106A	P	1135.39	1100.40			
MW-109	WT	1135.44	1135.44	0.00	35.24	0.0000
MW-109A	PZ	1135.44	1100.20			
MW-201	WT	1136.84	1136.84	0.02	35.54	0.0006
MW-201A	PZ	1136.82	1101.30			
MW-202	WT	1138.26	1138.26	0.20	36.16	0.0055
MW-202A	PZ	1138.06	1102.10			
MW-204	WT	1139.89	1139.89	0.37	35.89	0.0103
MW-204A	PZ	1139.52	1104.00			
MW-206	WT	1138.70	1138.70	-0.01	36.80	-0.0003
MW-206A	PZ	1138.71	1101.90			
MW-210	WT	1145.02	1145.02	0.16	41.02	0.0039
MW-210A	PZ	1144.86	1104.00			
					Average	0.0023

Prepared by: LD Checked by: LS

Footnotes:

[1] For water table monitoring wells, reference point (L) is the elevation of the water table.
For piezometers, reference point (L) is the elevation in the middle of the screen.

[2] Delta h is the difference between water table elevation and potentiometric surface elevation.

[3] Delta L is the difference between water table elevation and the elevation of the mid-point of the piezometer screen.

Notes:

1. Vertical gradient = Delta h/Delta L
2. A negative vertical hydraulic gradient indicates upward flow
3. WT = water table well
4. P = piezometer well
5. FT AMSL = feet above mean sea level
6. Elevation Data from Table 5-4
7. Well construction information from WDNR GEMS Database and Appendix I of the Northern Expansion No. 2 FR.

TETRA TECH

Table 5-7
Summary of Groundwater Velocity
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

GEOLOGIC UNIT	GEOMETRIC MEAN HYDRAULIC CONDUCTIVITY (CM/SEC)	AVERAGE HORIZONTAL HYDRAULIC GRADIENT (FT/FT)	GROUNDWATER VELOCITY (FT/DAY)
Silty Sand (Till)	1.77E-04	0.004	9.05E-04
Clay (Lacustrine)	1.92E-05	0.004	1.20E-04
Sand (Outwash)	6.66E-03	0.004	2.26E-02
Sandstone	4.74E-03	0.004	1.61E-02

Prepared by: LD Checked by: LS

Notes:

1. Velocity = Hydraulic Conductivity x Hydraulic Gradient / Porosity
2. Porosity assumed to be 0.45 for silty sand (Till), 0.55 for clay (Lacustrine), and 0.30 for sand (Outwash) and sandstone bedrock.
3. Horizontal velocity based on water table horizontal gradients.
4. Geometric Mean Hydraulic Conductivity was calculated on Table 5-3.
5. Average horizontal hydraulic gradient was calculated on Table 5-5 and is based on the horizontal hydraulic gradient spanning the Northern Expansion No. 2 area, parallel to the observed water table groundwater flow conditions.

Table 5-8
Baseline Groundwater Quality Analysis Program
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Monitoring Well	Minimum Baseline Groundwater Sampling Events and Parameter Groups							
	1	2	3	4	5	6	7	8
MW103R	A-F	A-F	A-D, F	A-D, F	A, B, Mn			
MW201	A-F	A-F	A-D, F	A-D, F	A, B, Mn			
MW201A	A-F	A-F	A-D, F	A-D, F	A, B			
MW202	A-F	A-F	A-F	A-F	A, B			
MW202A	A-F	A-F	A-F	A-F	A, B			
MW203	A-F	A-F	A-D, F	A-D, F	A, B, Mn			
MW204	A-F	A-F	A-D, F	A-D, F	A, B, Mn			
MW204A	A-F	A-F	A-D, F	A-D, F	A, B			
MW205	A-F	A-F	A-D, F	A-D, F	A, B, Mn			
MW206	A-F	A-F	A-D, F	A-D, F	A, B			
MW206A	A-F	A-F	A-D, F	A-D, F	A, B			
MW207	A-F	A-F	A-F	A-F	A, B, Mn			
MW208	A-F	A-F	A-D, F	A-D, F	A, B, Mn			
MW209	A-F	A-F	A-D, F	A-D, F	A, B			
MW210	A-F	A-F	A-D, F	A-D, F	A, B, Mn			
MW210A	A-F	A-F	A-D, F	A-D, F	A, B			

Notes:
(1) Time between sampling events must be at least 30 days.
(2) Parameter Groups A and B will be analyzed for all 8 sampling events.
(3) Parameter Group E will be reassessed after the second sampling event, per NR 507.18(3).
(4) Parameter Groups C, D and F will be reassessed after the fourth sampling event, per NR 503.10(7) and NR 507.18(2).
(5) Wells proposed to be designated as Subtitle D monitoring wells include MW201, MW203 and MW210.

Parameter Groups:

A	B	C	D	E	F
NR 507.17(1)	**NR 507.18(1) (Appendix I Tables 1 and 2)[a]**	**NR 507.18(2) (Appendix I Table 3 Public Health Stds)**	**NR 507.18(2) (Appendix I Table 3 Public Welfare Stds)**	**NR 507.18(3) (Appendix III VOCs)**	**NR 503 Table 3 (C&D Waste Landfills)[b]**
sampled 1-8 events	*sampled 1-8 events*	*sampled 1-4 events min.*	*sampled 1-4 events min.*	*sampled 1-2 events min.*	*sampled 1-4 events min.*
Groundwater elev.	Alkalinity	Arsenic	Copper	Volatile Organic	Field conductivity
Color	Chloride	Barium	Manganese (Mn)	Compounds (VOCs) per	Field pH
Odor	Field conductivity	Cadmium	Sulfate	EPA Method 8260	Alkalinity
Turbidity	(@ 25 degrees C)	Chromium	Zinc		Chloride
Field conductivity	Field pH	Fluoride			COD
(@ 25 degrees C)	Field temperature	Lead (Pb)			Hardness
Field pH	Groundwater elev.	Mercury			Sulfate
	Hardness	Nitrate+Nitrite (as N)			Groundwater elev.
	Boron	Selenium			Arsenic
	Sulfate	Silver			Barium
	Ammonia nitrogen	Antimony[c]			Cadmium
	COD	Beryllium[c]			Chromium
	Nitrate+Nitrite (as N)	Cobalt[c]			Cyanide
	Fluoride	Nickel[c]			Lead
	Sodium	Thallium[c]			Manganese
	Cadmium	Vanadium[c]			Mercury
	Lead				Selenium
	Selenium				Zinc

Footnotes:
(a) Parameters monitored for the Feasibility Report include constituents for municipal solid waste, municipal solid waste combustor residue, paper mill sludge, fly or bottom ash, foundry waste, and construction and demolition material, per NR 507.18 requirements. Duplicate analytes from NR 507.18 Tables 1 and 2 were removed from Groups A and B since they will be analyzed during each baseline sampling event. Duplicate analytes between Groups C, D, and F remain because one or more Groups may no longer be required in subsequent baseline sampling events.
(b) VOCs are required under Group F (NR 503 Table 3) but follow the same frequency and protocol as that required by NR 507.18(3). Therefore, it was not included in Group F list of constituents.
(c) Analytes are only required for Subtitle D well baseline sampling.

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Table 5-9
Summary of NR 140 Exceedances of Public Health and Welfare Parameters (Expansion Wells)
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Parameter Group	Unit	NR 140 PAL	NR 140 ES	Well ID	Sample Date	Result	NR 140 Exceedance	Hydraulic Location
Manganese Public Welfare	**mg/L**	**0.025**	**0.05**	MW-201	5/15/2024	0.121	ES - Public Welfare	Downgradient
				MW-201	7/16/2024	0.0263	PAL - Public Welfare	Downgradient
				MW-202	5/15/2024	0.0477	PAL - Public Welfare	Within
				MW-203	5/15/2024	0.717	ES - Public Welfare	Upgradient
				MW-203	7/16/2024	0.105	ES - Public Welfare	Upgradient
				MW-203	8/21/2024	0.108	ES - Public Welfare	Upgradient
				MW-203	9/24/2024	0.0534	ES - Public Welfare	Upgradient
				MW-203	11/12/2024	0.133	ES - Public Welfare	Upgradient
				MW-203	12/17/2024	0.0889	ES - Public Welfare	Upgradient
				MW-203	1/28/2025	0.1200	ES - Public Welfare	Upgradient
				MW-203	4/7/2025	0.092	ES - Public Welfare	Upgradient
				MW-204	5/15/2024	0.152	ES - Public Welfare	Within
				MW-205	5/15/2024	0.113	ES - Public Welfare	Upgradient
				MW-205	7/16/2024	0.0542	ES - Public Welfare	Upgradient
				MW-207	5/15/2024	0.547	ES - Public Welfare	Side gradient
				MW-207	7/16/2024	0.173	ES - Public Welfare	Side gradient
				MW-207	8/21/2024	0.161	ES - Public Welfare	Side gradient
				MW-207	9/24/2024	0.0848	ES - Public Welfare	Side gradient
				MW-207	11/12/2024	0.0308	PAL - Public Welfare	Side gradient
				MW-207	12/17/2024	0.0789	ES - Public Welfare	Side gradient
				MW-207	1/28/2025	0.0403	PAL - Public Welfare	Side gradient
				MW-208	5/15/2024	0.158	ES - Public Welfare	Side gradient
				MW-210	5/15/2024	0.207	ES - Public Welfare	Upgradient
				MW-210	7/16/2024	0.0541	ES - Public Welfare	Upgradient
Manganese Public Health	**mg/L**	**0.06**	**0.3**	MW-201	5/15/2024	0.121	PAL - Public Health	Downgradient
				MW-203	5/15/2024	0.717	ES - Public Health	Upgradient
				MW-203	7/16/2024	0.105	PAL - Public Health	Upgradient
				MW-203	8/21/2024	0.108	PAL - Public Health	Upgradient
				MW-203	11/12/2024	0.133	PAL - Public Health	Upgradient
				MW-203	12/17/2024	0.0889	PAL - Public Health	Upgradient
				MW-203	1/28/2025	0.1200	PAL - Public Health	Upgradient
				MW-203	4/7/2025	0.092	PAL - Public Health	Upgradient
				MW-204	5/15/2024	0.152	PAL - Public Health	Within
				MW-205	5/15/2024	0.113	PAL - Public Health	Upgradient
				MW-207	5/15/2024	0.547	ES - Public Health	Side gradient
				MW-207	7/16/2024	0.173	PAL - Public Health	Side gradient
				MW-207	8/21/2024	0.161	PAL - Public Health	Side gradient
				MW-207	9/24/2024	0.0848	PAL - Public Health	Side gradient
				MW-207	12/17/2024	0.0789	PAL - Public Health	Side gradient
				MW-208	5/15/2024	0.158	PAL - Public Health	Side gradient
				MW-210	5/15/2024	0.207	PAL - Public Health	Upgradient
Nitrate + Nitrite Public Health	**mg/L**	**2**	**10**	MW-201	7/16/2024	2.7	PAL - Public Health	Downgradient
				MW-201	11/12/2024	3.7 F1	PAL - Public Health	Downgradient
				MW-201	12/17/2024	3.3	PAL - Public Health	Downgradient
				MW-201	1/28/2025	3.4	PAL - Public Health	Downgradient
				MW-201	4/8/2025	3.0 F1	PAL - Public Health	Downgradient
				MW-202	5/15/2024	4.7 F1	PAL - Public Health	Within
				MW-202	7/16/2024	4.0	PAL - Public Health	Within
				MW-202	8/21/2024	4.1	PAL - Public Health	Within
				MW-202	9/24/2024	4.9	PAL - Public Health	Within
				MW-202	11/12/2024	4.2	PAL - Public Health	Within
				MW-202	12/17/2024	4.0 F1	PAL - Public Health	Within

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Table 5-9 (Continued)
Summary of NR 140 Exceedances of Public Health and Welfare Parameters (Expansion Wells)
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Parameter Group	Unit	NR 140 PAL	NR 140 ES	Well ID	Sample Date	Result	NR 140 Exceedance	Hydraulic Location
Nitrate + Nitrite	**mg/L**	**2**	**10**	MW-202	1/28/2025	4.9	PAL - Public Health	Within
Public Health				MW-202	4/8/2025	4.4	PAL - Public Health	Within
				MW-202A	7/16/2024	2.7	PAL - Public Health	Within
				MW-202A	4/8/2025	2.2	PAL - Public Health	Within
				MW-204	5/15/2024	20.1	ES - Public Health	Within
				MW-204	7/16/2024	24.4	ES - Public Health	Within
				MW-204	8/21/2024	27.7	ES - Public Health	Within
				MW-204	9/24/2024	28.7	ES - Public Health	Within
				MW-204	11/12/2024	21.7 F1^	ES - Public Health	Within
				MW-204	12/17/2024	21.9	ES - Public Health	Within
				MW-204	1/28/2025	26.6	ES - Public Health	Within
				MW-204	4/8/2025	29.0	ES - Public Health	Within
				MW-204A	5/15/2024	4.2	PAL - Public Health	Within
				MW-204A	7/16/2024	4.1	PAL - Public Health	Within
				MW-204A	8/21/2024	4.4	PAL - Public Health	Within
				MW-204A	9/24/2024	4.1 F1	PAL - Public Health	Within
				MW-204A	11/12/2024	4.1 ^	PAL - Public Health	Within
				MW-204A	12/17/2024	4.0	PAL - Public Health	Within
				MW-204A	1/28/2025	4.1	PAL - Public Health	Within
				MW-204A	4/8/2025	4.1 F1	PAL - Public Health	Within
				MW-205	5/15/2024	13.9	ES - Public Health	Upgradient
				MW-205	7/16/2024	23.1	ES - Public Health	Upgradient
				MW-205	8/21/2024	30.1	ES - Public Health	Upgradient
				MW-205	9/24/2024	34.4	ES - Public Health	Upgradient
				MW-205	11/12/2024	39.5 ^	ES - Public Health	Upgradient
				MW-205	12/17/2024	39.2	ES - Public Health	Upgradient
				MW-205	1/28/2025	44.3 F1	ES - Public Health	Upgradient
				MW-205	4/7/2025	29.7	ES - Public Health	Upgradient
				MW-206	7/16/2024	12.6	ES - Public Health	Side gradient
				MW-206	9/24/2024	13.9	ES - Public Health	Side gradient
				MW-206	11/12/2024	11.6 ^	ES - Public Health	Side gradient
				MW-206	12/17/2024	12.0 F1	ES - Public Health	Side gradient
				MW-206	1/28/2025	12.4	ES - Public Health	Side gradient
				MW-206	4/8/2025	13.1	ES - Public Health	Side gradient
				MW-207	11/12/2024	4.2	PAL - Public Health	Side gradient
				MW-207	1/28/2025	3.8	PAL - Public Health	Side gradient
				MW-207	4/8/2025	3.8	PAL - Public Health	Side gradient
				MW-208	7/16/2024	3.5	PAL - Public Health	Side gradient
				MW-208	8/21/2024	18.5 B ^	ES - Public Health	Side gradient
				MW-208	9/24/2024	3.8	PAL - Public Health	Side gradient
				MW-208	11/12/2024	3.9 F1 B ^	PAL - Public Health	Side gradient
				MW-208	12/17/2024	3.1	PAL - Public Health	Side gradient
				MW-208	1/28/2025	3.5	PAL - Public Health	Side gradient
				MW-208	4/8/2025	3.1	PAL - Public Health	Side gradient
				MW-209	7/16/2024	15.2	ES - Public Health	Upgradient
				MW-209	9/24/2024	14.3 F1	ES - Public Health	Upgradient
				MW-209	11/12/2024	17.8 B ^	ES - Public Health	Upgradient
				MW-209	12/17/2024	14.0	ES - Public Health	Upgradient
				MW-209	1/28/2025	14.7	ES - Public Health	Upgradient
				MW-209	4/8/2025	13.7 F1	ES - Public Health	Upgradient
				MW-210	5/15/2024	17.5	ES - Public Health	Upgradient
				MW-210	7/16/2024	21.9	ES - Public Health	Upgradient

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Table 5-9 (Continued)
Summary of NR 140 Exceedances of Public Health and Welfare Parameters (Expansion Wells)
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Parameter Group	Unit	NR 140 PAL	NR 140 ES	Well ID	Sample Date	Result	NR 140 Exceedance	Hydraulic Location
Nitrate + Nitrite Public Health	**mg/L**	**2**	**10**	MW-210	8/21/2024	22.7	ES - Public Health	Upgradient
				MW-210	9/24/2024	23.6	ES - Public Health	Upgradient
				MW-210	11/12/2024	25.9 B ^	ES - Public Health	Upgradient
				MW-210	12/17/2024	20.7	ES - Public Health	Upgradient
				MW-210	1/28/2025	22.6 F1	ES - Public Health	Upgradient
				MW-210	4/8/2025	21.7	ES - Public Health	Upgradient
				MW-210A	4/8/2025	2.4	PAL - Public Health	Upgradient
Chromium	**ug/L**	**10**	**100**	MW-206	5/15/2024	17.1	PAL - Public Health	Side gradient
Chloride Public Welfare	**mg/L**	**125**	**250**	MW-205	8/21/2024	132	PAL - Public Welfare	Upgradient
				MW-205	9/24/2024	134	PAL - Public Welfare	Upgradient
				MW-205	11/12/2024	158	PAL - Public Welfare	Upgradient
				MW-205	12/17/2024	172 F1 F2	PAL - Public Welfare	Upgradient
				MW-205	1/28/2025	178	PAL - Public Welfare	Upgradient
				MW-205	4/7/2025	166	PAL - Public Welfare	Upgradient
Lead Public Health	**ug/L**	**1.5**	**15**	MW-203	7/16/2024	5.7	PAL - Public Health	Upgradient
				MW-206A	7/16/2024	5.1	PAL - Public Health	Side gradient
Benzene	**ug/L**	**0.5**	**5**	MW-202A	5/15/2024	0.66 J	PAL - Public Health	Within

Prepared by: LD Checked by: AY/LS

Notes:

1. ES = Enforcement Standard, as established in NR 140
2. PAL = Preventative Action Limit, as established in NR 140
3. Wells included in this exceedance summary table include groundwater monitoring wells installed for the proposed Northern Expansion No. 2 of TTRDF (WDNR License No. 3455).
4. Data Qualifiers:
   "J" flags represent estimated values greater than or equal to the limit of detection but less than the limit of quantitation.
   "F1" flags represent results where the MS and/or MSD recovery exceeds control limits.
   "F2" flags represent results where the MS/MSD RPD exceeds control limits.
   "^" flags represent results where the instrument related QC is outside acceptance limits.
   "B" flags represent results where the compound was found in the blank and sample.
5. The hydraulic location listed for each well is relative to the proposed Northern Expansion No. 2 area that is upgradient/side gradient of the existing TTRDF.

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Table 6-1
Waste Tonnages and Composition Summary
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Year	Municipal Waste[a]		Industrial and Special Waste												Cover Soil[b]						Total Categories 1-33
	Category 1 Municipal Solid Waste		Category 2 Utility Ash/Sludges		Category 6 All Other SW (Not HW)		Category 24 Exempt Unusable Paper Making Materials		Category 25 Construction & Demolition Waste		Category 27 Waste Generated by a Non-Profit Org		Category 33 Sediments Not Mixed With Other Wastes		Category 19 Fee Exempt Waste Used for Cover Soil		Category 21 High Volume Industrial Used for Daily Cover, etc.		Category 23 Treated Contaminated Soil for Daily Cover		
	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)	(%)	(tons)
2019	87,762	85.2	3,719	3.6	4,924	4.8	1,868	1.8	698	0.7	874	0.8	0	0.0	1,397	1.4	957	0.9	783	0.8	102,982
2020	83,198	86.5	2,974	3.1	4,760	4.9	1,577	1.6	887	0.9	673	0.7	0	0.0	905	0.9	978	1.0	262	0.3	96,213
2021	95,862	89.6	2,578	2.4	4,424	4.1	1,834	1.7	751	0.7	238	0.2	0	0.0	28	0.0	515	0.5	719	0.7	106,949
2022	116,531	89.6	22	0.0	4,705	3.6	1,877	1.4	1,198	0.9	580	0.4	483	0.4	0	0.0	3,291	2.5	1,413	1.1	130,100
2023	127,325	87.7	0	0.0	5,766	4.0	2,072	1.4	2,878	2.0	1,026	0.7	790	0.5	0	0.0	3,404	2.3	1,873	1.3	145,134
Average	102,136	87.7	1,859	1.8	4,916	4.3	1,846	1.6	1,282	1.0	678	0.6	255	0.2	466	0.5	1,829	1.5	1,010	0.8	116,276

Notes:

1. Waste tonnages and categories obtained from the 2019, 2020, 2021, 2022, and 2023 WDNR Waste Tonnage/Capacity Reports (http://dnr.wi.gov/topic/Landfills/fees.html).
2. Average waste tonnages are rounded.
3. Percentages are individual waste category tonnages compared to total waste tonnage in Categories 1 - 33.
4. Only categories that have nonzero tonnages in the 2019 - 2023 WDNR Waste Tonnage/Capacity Reports are included on this summary table.

Prepared by: AH
Checked by: AC

Footnotes:

(a) Municipal Solid Waste includes residential and commercial waste.

(b) Other sources of soil used to reach a cover soil ratio of approximately 7 parts waste to 1 part cover soil.

Acronyms:

SW Solid Waste
HW Hazardous Waste

TETRA TECH

Table 7-1
Summary of Adjacent Water Supply Wells Within 1200-Feet of Waste Limits
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

Well Designation	Wisconsin Unique Well Number	Current Property Owner	Approximate Distance from Proposed Limits of Waste (ft)	Hydraulic Position Relative to Proposed Site	Approximate Surface Elevation (ft-MSL)	Well Depth (ft bgs)	Casing Depth (ft bgs)	Depth to Static Water[(a)] (ft bgs)	Formation Screened[(a)]	Comments
Wells with Previously Granted NR 812 / WDNR Water Supply Well Section Variances and NR 504 Exemptions										
PW-02	HR282	WM	400	Downgradient	1220	160	158	91	Sand & Sandstone	Installed 12/13/1994. NR 812 variance granted on 08/09/2001.
PW-03	RK151	WM	600	Sidegradient	1200	200	200	73	Sandstone	Installed 08/12/2003. Well log indicates that NR 812 variance was granted on 05/19/2003.
Abandoned Wells Prior to 2000 Northern Expansion No. 1 Feasibility Report										
PW-1	NA	WM	Abandoned	Downgradient	1220	Unknown	108	86	Unconsolidated Formation	Abandoned on 05/11/1994
PW-1A	NA	WM	Abandoned	Unknown	Unkonwn	113	113	86	Unknown	Abandoned on 05/30/1995

Prepared by: LD Checked by: LS

Footnotes:

(a) Based on well drilling or abandonment log information.

Notes:

1. Refer to Plan Sheet 3 of the proposed Northern Expansion No. 2 Feasibility Report for the location of water supply wells.
2. Available well construction logs, previous NR 812 variance documentation and well abandonment information provided in Appendix C of the Northern Expansion No. 2 Feasibility Report.

Acronyms:

NA = Not Available/Unknown

ft-MSL = feet above mean sea level

ft bgs = feet below ground surface

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Table 9-1
Preliminary Material Quantities
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

MATERIAL	QUANTITY	UNITS	SOIL BALANCE VOLUME (CY)
Off Site Clay Volume			
Czekalski Clay Soil	143,200	CY	
On Site Stockpile Volumes			
Czekalski Clay Soil	46,700	CY	
Loess Soil	11,250	CY	
Northern Expansion No. 2 Cut Volumes			
Subbase Excavation			
General Soil [(1)]	1,263,910	CY	
Loess Soil	97,700	CY	
Berm Excavation			
General Soil	14,910	CY	
Northern Expansion No. 2 Fill Volumes			
Subbase Construction			
General Soil	47,400	CY	
Berm Construction			
General Soil (compacted in-place)	159,680	CY	
Liner			
Drainage Layer (1-ft)	46,787	CY	
60-mil HDPE Geomembrane	1,263,240	SF	
Compacted Clay (4-ft)	187,147	CY	
Cover Soil (Daily & Intermediate)			
General Soil	812,500	CY	
Final Cover (Clay Option)			
Topsoil (0.5-ft)	54,692	CY	**Option A:**
Rooting Zone (2.5-ft)	273,460	CY	Gen. Soil:
Geocomposite Drainage Layer	2,953,368	SF	**-14,220**
40-mil HDPE Geomembrane	2,953,368	SF	
Compacted Clay (2-ft)	218,768	CY	
Final Cover (GCL Option)			
Topsoil (0.5-ft)	54,692	CY	**Option B:**
Rooting Zone (2.5-ft)	273,460	CY	Gen. Soil:
Geocomposite Drainage Layer	2,953,368	SF	**-123,604**
40-mil HDPE Geomembrane	2,953,368	SF	Loess:
GCL	2,953,368	SF	**-434**
Barrier Layer (upper 1-ft) *Loess	109,384	CY	
Barrier Layer (lower 1-ft)	109,384	CY	
Final Cover (Clay Option & Thicker Rooting Zone)			
Topsoil (0.5-ft)	54,692	CY	**Option C:**
Rooting Zone (3.5-ft)	382,844	CY	Gen. Soil:
Geocomposite Drainage Layer	2,953,368	SF	**-123,604**
40-mil HDPE Geomembrane	2,953,368	SF	
Compacted Clay (2-ft)	218,768	CY	

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Table 9-1 (Continued)
Preliminary Material Quantities
Timberline Trail RDF - Northern Expansion No. 2 Feasibility Report
WDNR License No. 3455
Township of Stubbs, Rusk County, WI

MATERIAL	QUANTITY	UNITS	SOIL BALANCE VOLUME (CY)
Final Cover (GCL Option & Thicker Rooting Zone)			
Topsoil (0.5-ft)	54,692	CY	**Option D:**
Rooting Zone (3.5-ft)	382,844	CY	Gen. Soil:
Geocomposite Drainage Layer	2,953,368	SF	**-232,988**
40-mil HDPE Geomembrane	2,953,368	SF	Loess:
GCL	2,953,368	SF	**-434**
Barrier Layer (upper 1-ft) *Loess	109,384	CY	
Barrier Layer (lower 1-ft)	109,384	CY	

Created By: DJP Checked By: TD

Notes:

1. Preliminary material quantities for berm construction, liner, and cover soil include the proposed Northern Expansion No. 2 area only. The area of the horizontal component of the proposed Northern Expansion No. 2 is approximately 29.0 acres.
2. Preliminary material quantities for final cover materials includes the proposed Northern Expansion No. 2 area and currently permitted TTRDF area that does not have an existing final cover; approximately 67.8 acres. See Figure P-1 of Appendix P to the Northern Expansion No. 2 Feasibility Report for open areas.
3. The proposed Northern Expansion No. 2 includes four different options for final cover design. See final cover option details provided on Plan Sheet 26 of the Northern Expansion No. 2 Feasibility Report.
4. Cover soil includes daily and intermediate cover needs, which is assumed to be a 7:1 waste to cover ratio (12.5%) of total proposed Northern Expansion No. 2 capacity of 6,500,000 cubic yards.
5. General Fill soil balance volume is calculated by subtracting berm soil, cover soil, lower barrier layer (where applicable) and rooting zone volumes from the total subbase and berm excavation soil volume.
6. Loess soil balance volume is calculated by subtracting the Upper Soil Barrier Layer volume from the total Loess Soil subbase excavation soil volume. Loess soil has been used for the upper barrier layer soil at TTRDF in the Final Cover GCL Option because it meets Condition 15a requirements of the June 7, 2002 Plan of Operation Approval letter.
7. Volume quantities for onsite soil stockpiles, subbase and berm excavation and fill were generated by AutoCAD and are provided in Appendix S of the proposed Northern Expansion No. 2 Feasibility Report.

CY = Cubic Yards GCL = Geosynthetic Clay Liner SF = Square Feet

Footnote:

(1) General Soil volume for Subbase Excavation is the expansion excavation volume (1,419,560 CY) from AutoCAD Cut/Fill Report minus the onsite soil stockpile volumes and minus the loess soil material volume within the proposed limits of waste.

TETRA TECH

Table 11-1
Solid Waste Disposal Capacity for MSW Landfills or WTE Facilities Serving the TTRDF Service Area
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

Site Name	County	Estimated Site Capacity[1,2,4] (Cubic Yards)	Recently added Expansion Capacity (Cubic Yards)	Waste Received from the TTRDF Service Area[3] (percent overlap)	Site Capacity Available for the TTRDF Service Area (Cubic Yards)
Timberline Trail RDF	Rusk, WI	3,646,021	-	100%	3,646,021
Seven Mile Creek Landfill	Eau Claire, WI	4,262,661	-	83%	3,538,009
Lake Area Landfill	Washburn, WI	4,930,010	-	74%	3,648,207
Pine Bend Landfill	Dakota, MN	1,049,536	-	64%	671,703
Burnsville Sanitary Landfill	Dakota, MN	12,784,506	-	44%	5,625,183
Elk River Landfill	Sherburne, MN	2,539,849	-	40%	1,015,940
Covanta HERC WTE	Hennepin, MN	1,460,000	-	31%	452,600
Xcel Energy - Red Wing WTE	Goodhue, MN	2,560,000	-	21%	537,600
City of Superior Landfill	Douglas, WI	533,450	-	5%	26,673
Spruce Ridge Landfill	McLeod, MN	364,246	-	3%	10,927
	TOTAL	**34,130,279**	**0**	**-**	**19,172,862**

Prepared by: MP/AY Checked by: TD

Footnotes:

(1) Estimated site capacity data for Wisconsin disposal facilities was collected from WDNR 2023 Wisconsin Municipal and Industrial Waste Landfill Tonnage Report - Capacity as of Jan. 2024. (http://dnr.wi.gov/topic/Landfills/Fees.html)

(2) Estimated site capacity data for Minnesota disposal facilities was provided by the MPCA in an excel file titled "Land Disposal Activity 2023" provided by MPCA on February 21, 2025 following an online information request form submitted by Tetra Tech. Estimated site capacity for each MN landfilll after December 31, 2023 was listed under "Remaining Permitted Capacity" column within the excel file.

(3) Percent Waste from anticipated service area is estimated based on current approximate service areas (by county) weighted for current population of shared counties. This was based on information provided by WM staff on where market conditions show competition with the other service area landfills and publicly available WDNR permit documents that list service areas (by counties) for landfills in Wisconsin. Industrial waste monofills permitted to only receive industrial waste from an approved source do not compete for industrial waste potentially received by TTRDF.

(4) Waste to Energy (WTE) facilities in MN that are active are permitted a maximum waste tonnage per year for processing. Estimated site capacities for these facilities was calculated based on the permitted annual tonnage, converted to cubic yards equivalent using as assumed disposal density of 1,500 lb/cy if waste was landfilled instead, and multiplied by years of operation remaining until the proposed TTRDF expansion opens in 2030, or until expected closure of the WTE facility. The current operator's contract for the Hennepin Energy Resource Center (HERC) WTE facility will expire in 2025 and it is anticipated the facility will be closed thereafter.

TETRA TECH

Table 11-2
Service Area Population
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

County	2020 Census [1,2]	2023/2024 Estimate [1,2]	Numeric Change	Percent Change	Annual Growth Rate
Wisconsin Counties					
Ashland, WI	16,027	15,851	-176	-1.1%	-0.55%
Barron, WI	46,711	46,856	145	0.3%	0.16%
Bayfield, WI	16,220	16,174	-46	-0.3%	-0.14%
Buffalo, WI	13,317	13,234	-83	-0.6%	-0.31%
Burnett, WI	16,526	16,550	24	0.1%	0.07%
Chippewa, WI	66,297	67,801	1,504	2.3%	1.13%
Clark, WI	34,659	35,001	342	1.0%	0.49%
Dunn, WI	45,440	45,693	253	0.6%	0.28%
Eau Claire, WI	105,710	110,871	5,161	4.9%	2.41%
Pepin, WI	7,318	7,360	42	0.6%	0.29%
Pierce, WI	42,212	42,605	393	0.9%	0.46%
Polk, WI	44,977	45,575	598	1.3%	0.66%
Price, WI	14,054	13,932	-122	-0.9%	-0.43%
Rusk, WI	14,188	14,171	-17	-0.1%	-0.06%
St. Croix, WI	93,536	98,849	5,313	5.7%	2.80%
Sawyer, WI	18,074	18,286	212	1.2%	0.58%
Taylor, WI	19,913	20,150	237	1.2%	0.59%
Washburn, WI	16,623	16,644	21	0.1%	0.06%
Minnesota Counties					
Anoka, MN	363,887	371,269	7,382	2.0%	1.01%
Carlton, MN	36,207	36,823	616	1.7%	0.85%
Chisago, MN	56,621	58,536	1,915	3.4%	1.68%
Dakota, MN	439,882	449,658	9,776	2.2%	1.11%
Goodhue, MN	47,582	48,040	458	1.0%	0.48%
Hennepin, MN	1,281,565	1,297,847	16,282	1.3%	0.63%
Kanabec, MN	16,032	16,604	572	3.6%	1.77%
McLeod, MN	36,771	36,882	111	0.3%	0.15%
Pine, MN	28,876	30,204	1,328	4.6%	2.27%
Ramsey, MN	552,352	553,409	1,057	0.2%	0.10%
Rice, MN	67,097	67,946	849	1.3%	0.63%
St. Louis, MN	200,231	200,516	285	0.1%	0.07%
Scott, MN	150,928	156,529	5,601	3.7%	1.84%
Sherburne, MN	97,183	102,206	5,023	5.2%	2.55%
Wabasha, MN	21,387	21,681	294	1.4%	0.68%
Washington, MN	267,568	280,411	12,843	4.8%	2.37%
Winona, MN	49,671	49,721	50	0.1%	0.05%
TOTAL	**4,345,642**	**4,423,885**	**n/a**	**n/a**	**0.90%**

Prepared by: MP/AY Checked by: TD

WI+MN Average Disposal Rate (2019-2023)[3]	1.00	ton/capita/yr

Estimated Waste Disposal (2024)[4]	4,423,885	tons/year
Average Waste Density[5]	1,500	lbs/cubic yard
Estimated Waste Disposal (2024)	5,898,513	cubic yards/year

Footnote:

(1) Wisconsin population data from Wisconsin Department of Administration, from 2020 Census and 1/1/2024 estimates; County Preliminary Population Estimates (https://doa.wi.gov/Pages/LocalGovtsGrants/Population_Estimates.aspx)

(2) Minnesota population data from Minnesota Department of Administration, from 2020 census and 2023 estimates released 9/1/2024; Historical estimates of Minnesota, its Economic Development Regions, and its counties' population and households, 1990-2023 (https://mn.gov/admin/demography/data-by-topic/population-data/our-estimates/)

(3) Statewide Average Disposal Rate is calculated on Table 11-3.

(4) Estimated Waste Disposal (2024) is calculated by multiplying the Total 2023 Population Estimate by the Statewide Average Disposal Rate (2019-2023).

(5) Average In-Place Waste Density from Draft WDNR Landfill Needs and Site Life Guidance Document (WDNR, 2004).

TETRA TECH

Table 11-3
Wisconsin and Minnesota Waste Disposal Rates
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

Year	Population[1,2]	Total Volume of Waste Disposed of in MSW Landfills and Incinerators		Disposal Rate[7]					
		MSW[3,4]	Non-MSW[5,6]	MSW	Non-MSW	Total	MSW	Non-MSW	Total
		(tons)		(tons/capita/year)			(lbs/capita/day)		
Wisconsin									
2014	5,732,981	3,977,291	4,187,778	0.69	0.73	1.42	3.80	4.00	7.80
2015	5,753,324	3,991,389	4,228,574	0.69	0.73	1.43	3.80	4.03	7.83
2016	5,775,120	4,070,860	4,470,469	0.70	0.77	1.48	3.86	4.24	8.10
2017	5,783,278	4,222,091	4,234,245	0.73	0.73	1.46	4.00	4.01	8.01
2018	5,816,231	4,286,143	4,473,260	0.74	0.77	1.51	4.04	4.21	8.25
2019	5,843,443	4,422,423	4,289,910	0.76	0.73	1.49	4.15	4.02	8.17
2020	5,854,594	4,350,249	3,603,943	0.74	0.62	1.36	4.07	3.37	7.44
2021	5,901,473	4,478,130	3,703,388	0.76	0.63	1.39	4.16	3.44	7.60
2022	5,949,155	4,398,873	4,051,449	0.74	0.68	1.42	4.05	3.73	7.78
2023	5,989,256	4,473,716	4,136,203	0.75	0.69	1.44	4.09	3.78	7.88
		WI AVERAGE (2019-2023 - last 5 years)		0.75	0.67	**1.42**	4.11	3.67	**7.78**
Minnesota									
2014	5,453,218	2,479,369	596,904	0.45	0.11	0.56	2.49	0.60	3.09
2015	5,485,238	2,174,674	1,060,553	0.40	0.19	0.59	2.17	1.06	3.23
2016	5,528,630	2,190,433	1,134,014	0.40	0.21	0.60	2.17	1.12	3.29
2017	5,577,487	2,233,425	1,236,808	0.40	0.22	0.62	2.19	1.22	3.41
2018	5,629,416	2,220,174	1,265,828	0.39	0.22	0.62	2.16	1.23	3.39
2019	5,680,337	2,449,214	902,316	0.43	0.16	0.59	2.36	0.87	3.23
2020	5,706,494	2,457,323	829,968	0.43	0.15	0.58	2.36	0.80	3.16
2021	5,742,036	2,561,178	728,562	0.45	0.13	0.57	2.44	0.70	3.14
2022	5,801,769	2,544,160	831,209	0.44	0.14	0.58	2.40	0.79	3.19
2023	5,800,386	2,550,557	760,896	0.44	0.13	0.57	2.41	0.72	3.13
		MN AVERAGE (2019-2023 - last 5 years)		0.44	0.14	**0.58**	2.41	0.77	**3.18**

Population Growth Rate

WI Statewide Annual Growth Rate (2014-2023) =	0.44%
MN Statewide Annual Growth Rate (2014-2023) =	0.62%
WI+MN Average Annual Population Growth Rate (2014-2023)	0.53%

Disposal Rate (tons/capita/year)

WI Statewide Disposal Rate (2019-2023) =	1.42
MN Statewide Disposal Rate (2019-2023) =	0.58
WI+MN Average Disposal Rate (2019-2023)	1.00

Prepared by: MP/AY Checked by: TD

Footnotes:

(1) Wisconsin population data from Wisconsin Department of Administration - Time Series Population Estimates (1970-2023) (https://doa.wi.gov/Pages/LocalGovtsGrants/Population_Estimates.aspx, Time_Series_Co_2023.xlsx)

(2) Minnesota population data from Minnesota Department of Administration - Historical estimates of Minnesota, its Economic Development Regions, and its counties' population and households, 1990-2023 (https://mn.gov/admin/demography/data-by-topic/population-data/our-estimates/).

(3) Wisconsin MSW (Municipal Solid Waste) tons includes Category 1 Wastes from WDNR Landfill Tonnage Reports.

(4) Minnesota MSW tons includes Mixed MSW and MSW disposed in MSW-lined cells and Waste to Energy Processing Facilities from MPCA Waste Activity Reports (2013-2023).

(5) Wisconsin Non-MSW tons includes Categories 2-6 and 19-28 from WDNR Landfill Tonnage Reports for the years 2012-2014. Years 2015-2020 Non-MSW tons includes Categories 2-6 and 19-31. The year 2021 Non-MSW tons includes Categories 2-6 and 19-32. The year 2022 and 2023 Non-MSW tons includes Categories 2-6 and 19-33.

(6) Minnesota Non-MSW tons includes any non-MSW or non-mixed MSW disposed in MSW-lined cells and Waste to Energy Processing Facilities from MCPA Waste Activity Report (2013-2023).

(7) Per capita annual disposal rates are rounded numbers where specific MSW or Non-MSW rates may not equal the Total Rates.

TETRA TECH

Table 11-4
Service Area Disposal Rate and Remaining Capacity without TTRDF Expansion
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

WI+MN Statewide Disposal Rate	*1.00*	*tons/cap/yr*
Service Area Population Growth Rate	*0.90%*	*annually*

Year	Available MSW Disposal Capacity (Cubic Yards)	Estimated MSW Disposal (Cubic Yards)	Remaining Years of MSW Disposal Capacity
2024	19,172,862	5,898,513	3
2025	13,274,349	5,951,600	2
2026	7,322,749	6,005,164	1
2027	1,317,585	6,059,211	0
2028	0	6,113,744	0
2029	0	6,168,767	0
2030	0	6,224,286	0
2031	0	6,280,305	0
2032	0	6,336,828	0

Prepared by: MP Checked by: TD

Notes:

1. WI+MN statewide disposal rate is average per-capita disposal rate in Wisconsin and Minnesota from 2019-2023 (Table 11-3).
2. Population growth is estimated for service area only, as noted in Table 11-2.
3. Available MSW service area disposal capacity for 2024 is calculated on Table 11-1.
4. Estimated MSW Disposal (cubic yards) in 2024 is calculated on Table 11-2.

TETRA TECH

Table 11-5
Service Area Disposal Rate and Remaining Capacity with TTRDF Expansion
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

WI+MN Statewide Disposal Rate	*1.00*	*tons/cap/yr*
Service Area Population Growth Rate	*0.90%*	*annually*

Year	Available MSW Disposal Capacity (Cubic Yards)	Estimated MSW Disposal (Cubic Yards)	Remaining Years of MSW Disposal Capacity
2024	19,172,862	5,898,513	3
2025	13,274,349	5,951,600	2
2026	7,322,749	6,005,164	1
2027	1,317,585	6,059,211	0
2028	0	6,113,744	0
2029	0	6,168,767	0
2030	6,500,000	6,224,286	1
2031	275,714	6,280,305	0
2032	0	6,336,828	0
2033	0	6,393,859	0
2034	0	6,451,404	0
2035	0	6,509,466	0

Prepared by: MP Checked by: TD

Notes:

1. WI+MN statewide disposal rate is average per-capita disposal rate in Wisconsin and Minnesota from 2019-2023 (Table 11-3).
2. Population growth is estimated for service area only, as noted in Table 11-2.
3. Available MSW service area disposal capacity for 2024 is calculated on Table 11-1.
4. Estimated MSW Disposal (CY) in 2024 is calculated on Table 11-2.
5. Assumes that TTRDF Northern Expansion No. 2 capacity of 6,500,000 CY extends the life of the landfill starting in 2030.

TETRA TECH

Table 11-6
Wisconsin and Minnesota Disposal Rate and Remaining Capacity without New Landfills or Expansions
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

WI+MN Statewide Disposal Rate	*1.00*	*tons/cap/yr*
WI+MN Population Growth Rate	0.53%	*annually*

Year	Available MSW Disposal Capacity (Cubic Yards)	Estimated MSW Disposal (Cubic Yards)	Remaining Years of MSW Disposal Capacity
2024	118,283,259	15,667,899	8
2025	102,615,360	15,750,732	7
2026	86,864,628	15,834,004	5
2027	71,030,624	15,917,716	4
2028	55,112,909	16,001,870	3
2029	39,111,038	16,086,469	2
2030	23,024,569	16,171,516	1
2031	6,853,053	16,257,012	0
2032	0	16,342,960	0
2033	0	16,429,363	0
2034	0	16,516,222	0
2035	0	16,603,541	0

Prepared by: AY Checked by: TD

Notes:

1. WI+MN statewide disposal rate is average per-capita disposal rate in Wisconsin and Minnesota from 2019-2023 (Table 11-3).
2. WI+MN population growth rate for years 2014-2023, calculated on Table 11-3.
3. Available MSW Disposal Capacity as of January 1, 2024 per WDNR 2023 Landfill Tonnage Report, exclusive of approved or pending expansions since the Tonnage Report issuance.
4. Estimated site capacity data for Minnesota disposal facilities was provided by the MPCA in an excel file titled "Land Disposal Activity 2023" provided by MPCA on February 21, 2025 following an online information request form submitted by Tetra Tech. Estimated site capacity for each MN landfilll after December 31, 2023 was listed under "Remaining Permitted Capacity" column within the excel file.
5. Estimated MSW disposal in 2024 is estimated total WI+MN state populations in 2023 (Table 11-3) multiplied by the MSW statewide disposal rate, using the waste density of 1,500 lbs/cy.
6. Remaining years of disposal capacity as of January 1st of year shown.

TETRA TECH

Table 11-7
Historical and Projected Waste Acceptance Volumes and Rates at TTRDF
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

Year	Waste Accepted - All (Ton)	Estimated Volume Consumed (Cubic Yards)	Annual Percent Change (%)
2013	99,289	132,385	-
2014	85,244	113,659	-14%
2015	100,740	134,320	18%
2016	101,665	135,553	1%
2017	120,099	160,132	18%
2018	120,232	160,309	0%
2019	102,983	137,311	-14%
2020	96,213	128,284	-7%
2021	106,949	142,599	11%
2022	130,100	173,467	22%
2023	145,137	193,516	12%
Mean:	**112,512**	**150,016**	**-**
Median:	**104,966**	**139,955**	**-**
Avg Last 3 Years	**130,921**	**174,561**	**15%**

Prepared by: MP/AY Checked by: TD

Notes:
1. 2013 - 2023 waste tonnage intake rates from annual WDNR Tonnage Reports. Includes out of state waste. (http://dnr.wi.gov/topic/Landfills/Fees.html)
2. Volume consumed at 1,500 lbs/cy per Draft WDNR Landfill Needs and Site Life Guidance Document (WDNR, 2004).

TETRA TECH

Table 11-8
Existing TTRDF Disposal Rate and Remaining Capacity without TTRDF Expansion
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

WI+MN Statewide Disposal Rate	*1.00*	*tons/cap/yr*
Service Area Population Growth Rate	*0.90%*	*annually*
Average Waste Acceptance Rate Change	*15%*	*annually*

Year	Available Disposal Capacity (Cubic Yards)	Estimated Disposal Rate (Cubic Yards)	Remaining Years of Disposal Capacity
2024	3,646,021	224,546	16
2025	3,421,475	260,552	13
2026	3,160,922	302,332	10
2027	2,858,591	350,811	8
2028	2,507,780	407,063	6
2029	2,100,717	472,336	4
2030	1,628,381	548,075	3
2031	1,080,306	635,959	2
2032	444,347	737,935	1
2033	0	856,263	0
2034	0	993,564	0

Prepared by: MP/AY Checked by: TD

Notes:

1. WI+MN statewide disposal rate is average per-capita disposal rate in Wisconsin and Minnesota from 2019-2023 (Table 11-3).
2. Population growth is estimated for service area only, as noted in Table 11-2.
3. Available disposal capacity as of January 1, 2024 was calculated on Table 11-1.
4. Average annual waste acceptance rate percent change calculated on Table 11-7.
5. Projected estimated disposal rates for 2024 and beyond is calculated by applying the service area annual growth rate (0.90%) as well as the annual average waste acceptance rate change (15%) to the 2023 tonnage for TTRDF.
6. Remaining years of disposal capacity as of January 1st of year shown. The remaining years of disposal capacity calculation for each year divides the available disposal capacity by estimated disposal rate.

TETRA TECH

Table 11-9
Existing TTRDF Disposal Rate and Remaining Capacity with TTRDF Expansion
Timberline Trail RDF - Northern Expansion No. 2
Needs Analysis and Site Life
Township of Stubbs, Rusk County, WI

WI+MN Statewide Disposal Rate	*1.00*	*tons/cap/yr*
Service Area Population Growth Rate	*0.90%*	*annually*
Average Waste Acceptance Rate Change	*15%*	*annually*

Year	Available Disposal Capacity (Cubic Yards)	Estimated Disposal Rate (Cubic Yards)	Remaining Years of Disposal Capacity
2024	3,646,021	224,546	16
2025	3,421,475	260,552	13
2026	3,160,922	302,332	10
2027	2,858,591	350,811	8
2028	2,507,780	407,063	6
2029	2,100,717	472,336	4
2030	8,128,381	548,075	14.8
2031	7,580,306	635,959	12
2032	6,944,347	737,935	9
2033	6,206,412	856,263	7
2034	5,350,150	993,564	5
2035	4,356,586	1,152,882	4
2036	3,203,703	1,337,747	2
2037	1,865,956	1,552,255	1
2038	313,702	1,801,159	0
2039	0	2,089,974	0
2040	0	2,425,102	0
2041	0	2,813,967	0
2042	0	3,265,187	0
2043	0	3,788,759	0
2044	0	4,396,287	0
2045	0	5,101,231	0

Prepared by: MP/AY Checked by: TD

Notes:

1. WI+MN statewide disposal rate is average per-capita disposal rate in Wisconsin and Minnesota from 2019-2023 (Table 11-3).
2. Population growth is estimated for service area only, as noted in Table 11-2.
3. Available disposal capacity as of January 1, 2024 was calculated on Table 11-1.
4. Average annual waste acceptance rate percent change calculated on Table 11-7.
5. Projected estimated disposal rates for 2024 and beyond is calculated by applying the service area annual growth rate (0.90%) as well as the annual average waste acceptance rate change (15%) to the 2023 tonnage for TTRDF.
6. Remaining years of disposal capacity as of January 1st of year shown.
7. Assumes that TTRDF Northern Expansion No. 2 capacity of 6,500,000 CY extends the life of the landfill starting in 2030.