2020 Annual Aquifer Monitoring Report
Evergreen Spring
Fryeburg, Maine

Prepared for:

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March 2021

2020 ANNUAL AQUIFER MONITORING REPORT
EVERGREEN SPRING
FRYEBURG, MAINE

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1.0 INTRODUCTION

Nestle Waters North America Inc. (d/b/a/ Poland Spring) has contracted with Luetje Geological Services (LGS) of Freeport, Maine, and McDonald Morrissey Associates, LLC. (MMA) of Concord, New Hampshire, independent hydrogeologic consulting firms, to collect and compile data from the Wards Brook Aquifer. Poland Spring is not required to submit these data to the Town of Fryeburg, but started to do so voluntarily with the December 2008 monthly report. Annual reports are compiled after the end of each calendar year summarizing final data and drawing conclusions about hydrologic conditions in the Wards Brook Aquifer. Poland Spring purchases spring water in Fryeburg from the Fryeburg Water Company (FWC). The FWC also services other residential, commercial, industrial and public water users from Evergreen Spring in Fryeburg.

Hydrogeologic data collection from locations in and around the Wards Brook Aquifer began in 2003 by Woodard & Curran (W&C) for Pure Mountain Springs Company (PMS). LGS assumed responsibility for the monthly monitoring program in July 2008, and continues to conduct monitoring of the Wards Brook Aquifer on behalf of Poland Spring. The primary role for LGS is monthly data collection and preparation of monthly and annual reports. MMA was contracted to perform data analysis, program review, and general oversight of site monitoring and reporting.

In August 2005, Emery & Garrett Groundwater, Inc. submitted a report (*Groundwater Flow Model, Wards Brook Aquifer, Fryeburg, Maine, 2005)* to the Town of Fryeburg Planning Board. This report was funded by the Fryeburg Aquifer Resource Committee (FARC). To date, this appears to be the most comprehensive investigation and report pertaining to the Wards Brook Aquifer.

In 2018, Emery & Garrett updated and re-calibrated the numerical model of the Wards Brook Aquifer, incorporating the latest groundwater and surface water information. They concluded that "the original permissible [commercial withdrawal] limit of 603,000 gallons per day [i.e. 220 million gallons per year] is sustainable and ensures that groundwater discharge to Wards Brook will exceed 400 gallons per minute under any non-extreme climatic scenario[1]". In 2020, Poland Spring purchased approximately 131 million gallons, or approximately 60% of the sustainable yield for commercial withdrawal.

2.0 AQUIFER MONITORING PROGRAM

This annual report is a compilation of data for the period from January 2020 through December 2020. Also included is the entire record of water elevations (2003 – present) measured at MW-108 (Figure 3), showing typical seasonal groundwater fluctuations in the Wards Brook Aquifer as discussed further in Section 4.0. Data are presented for:

- Eleven monitoring wells (ten beginning with the August 2020 monitoring event);
- Six surface water stations (two were added beginning with the June 2020 monitoring event);

1. EGGI (2018), Recalibration and Application of the Numerical Model of the Wards Brook Aquifer, Fryeburg, Maine, submitted to the Town of Fryeburg.

- Two rain gauges (an on-site rain gauge located at the load-out facility and data obtained from the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center);
- Withdrawal data from PBH-1; and,
- Two stream flow locations along Wards Brook beginning with the June 2020 monitoring event.

Modifications to the monitoring program include the removal of MW-103 at the landowners' request (July 28, 2020), and the addition of surface water elevation and stream flow measurements at the SG-2 and SG-3 locations along Wards Brook beginning in June 2020. Locations of all data collection stations are shown in Figure 1. Table 1 summarizes data collection stations and monitoring frequency.

3.0 PRECIPITATION

Precipitation is recorded on-site adjacent to PBH-1 using an Onset Data Logging Rain Gauge (RG). The location of the on-site rain gauge is shown in Figure 1. A photograph showing the on-site rain gauge (Photograph C) appears in Appendix A. The on-site rain gauge has a self-tipping bucket that is activated with every 0.01 inches of precipitation. The gauge is also wrapped with a heat tape that melts snowfall and allows measurement of liquid precipitation through the winter months.

Precipitation data are also recorded at the Fryeburg Eastern Slopes Airport (ICAO Station KIZG, Northeast Regional Climate Center) and compared to precipitation measurements taken by the on-site rain gauge. The Fryeburg Eastern Slopes Airport is approximately two miles to the south of the on-site rain gauge. Table 2 summarizes 2020 precipitation data available and used in the monthly reports.

Examination of Table 2 shows that there is a correlation between precipitation data collected at both locations. For the 2020 calendar year, the on-site rain gauge recorded a total of 39.33 inches of precipitation, 10.37 inches less than was recorded in 2019, and approximately nine inches below the 29-year mean. The Fryeburg Eastern Slopes Airport gauging station recorded 40.94 inches of precipitation, 5.63 inches less than was recorded in 2019. From 1992 to 2020, the Fryeburg area has received an average of approximately 48 inches of precipitation per year. This average was calculated from data primarily recorded at the Fryeburg Eastern Slopes Airport weather station (ICAO Station KIZG, Northeast Regional Climate Center). Data from the on-site rain gauge was used where gaps in the KIZG record occurred.

4.0 GROUNDWATER LEVELS

Groundwater levels were measured in eleven monitoring wells from January through July 2020, and ten monitoring wells from August 2020 to the end of the year. As mentioned in Section 2.0, MW-103 was removed at the landowners' request on July 28th, 2020. All monitoring well locations are shown in Figure 1. These wells provide groundwater level data across and adjacent to the Wards Brook watershed. Photographs A and AA show a typical monitoring well in Fryeburg and the device used to measure the depth to water (water level indicator). Photographs appear in Appendix A.

Figures 2A through 2C show groundwater elevations measured from the monitoring well network for the 2020 calendar year. All elevations are referenced to the 1988 North American Vertical Datum (NAVD88). Figure 2A shows groundwater elevations ranging from 410-430 feet NAVD88, Figure 2B shows groundwater elevations ranging from 390-415 feet NAVD88, and Figure 2C shows groundwater elevations ranging from 375-395 feet NAVD88. Each hydrograph is accompanied by a bar graph showing monthly precipitation.

Groundwater level fluctuations are primarily driven by the timing and amount of precipitation in a given region. In general, the highest groundwater levels occur in the spring in response to recharge from spring rain and snow melt after the ground thaws. Groundwater levels tend to decline through the summer months, when evapotranspiration is greatest, and lowest groundwater levels occur near the end of the summer or early fall. After the trees drop their leaves and evapotranspiration decreases, groundwater levels generally rise until the ground freezes. Another period of low groundwater levels then occurs in late winter after the ground has been frozen for several months. Data tables showing all groundwater and surface water elevation data appear in Appendix B.

Groundwater levels as seen in Figures 2A thru 2C show groundwater level trends typically observed across the aquifer. 2020 groundwater levels began with the seasonal winter decline in progress. This is the period of time when the ground is frozen, precipitation is frozen, and limited recharge is occurring to the aquifer. This decline ended at most monitoring locations in February, after which a rise in groundwater elevations was observed in the spring caused by snowpack melt and precipitation. Groundwater levels reached their seasonal maximum during the months of April and May 2020. Groundwater levels declined through the summer, reaching seasonal low levels from September to December 2020. This was amplified by below average precipitation recorded in August and September. At most locations, groundwater levels began to rise again in response to late fall/early winter recharge prior to the end of 2020.

Frozen conditions were observed at TW-9 during the November and December 2020 monitoring rounds as seen in Figure 2B and Appendix B. The water levels in TW-2 and 9 have consistently been above ground surface and water occasionally will freeze in the well casing during the winter months if water is not overflowing the well casing.

Figure 3 shows the entire record of groundwater elevations for MW-108 (November 2003 – present) and demonstrates the typical seasonal groundwater fluctuations observed across the aquifer. Figure 3 also shows the hydrograph of OW-1214, a well located in Oxford, Maine and monitored by the United States Geological Survey. OW-1214 is a six inch diameter well screened from 35-38 feet below ground surface in stratified sand and gravel, and shows groundwater level fluctuations outside of the Fryeburg area but in the same general region and in a similar geologic environment. Inclusion of OW-1214 demonstrates the close correlation between water levels at both locations.

In addition on Figure 3, precipitation data are displayed in two plots below the hydrographs. Precipitation data is presented as monthly, annual totals, annual cumulative departure from mean (reset annually), and total precipitation departure from the mean (since 1992).

5.0 SURFACE WATER LEVELS

Surface water elevation is measured at six locations in and around the Wards Brook Aquifer watershed as seen in Figure 1. The surface water measuring locations are as follows:

- Saco River Monitoring Point (SRMP-1): surface water elevation is measured at the Route 113 bridge;
- Wards Pond Monitoring Point (WPMP-1): surface water elevation is measured at the Route 113 crossing;
- Lovewell Pond Staff Gauge (LPSG-1): surface water elevation is measured at the inlet from Wards Brook;
- Wards Pond Staff Gauge (WPSG-2A): surface water elevation is measured near the center of the watershed in a bog located to the south of Wards Pond; and,
- SG-2 and SG-3: These staff gauges are in Wards Brook at the upstream and downstream gauging locations, and are discussed further in Section 6.0.

Appendix A includes a photograph (Photograph B) showing a typical staff gauge used to measure surface water stage and a view of Lovewell Pond (Photograph BB) facing north from the boat ramp located off Route 113. The Lovewell Pond photograph is taken every June monitoring event to document conditions during the same time of year. 2020 surface water elevations from surface water stations appear in Figure 4. A data table summarizing surface water elevation data appears in Appendix B.

Examination of Figure 4 shows normal seasonal surface water fluctuations near the site. In general, there is typically a rise in surface water levels during spring melt, a decline through the summer months, another rise in the fall and early winter followed by frozen conditions during winter months. Frozen conditions were observed at WPSG-2A and SRMP-1 during the January, February, and December 2020 monitoring rounds. Conditions at LPSG-1 and WPMP-1 remained unfrozen throughout 2020.

6.0 WARDS BROOK STREAM FLOW

Beginning with the June 2020 monitoring round, stream flow and surface water elevation have been measured at two locations along Wards Brook. As seen on Figure 1, SG-2 (~200' downstream from Rt 113) is the upstream location, and SG-3 (at the former grist mill site) is the downstream location. Surface water elevation is measured at these locations to potentially create a 'rating curve' that may establish a relationship between surface water stage and stream flow. Between SG-2 and SG-3, Wards Brook gains flow from spring discharge, including those associated with the Evergreen Spring site.

Flow is measured using a Marsh McBirney Flo-Mate Model 2000 electromagnetic velocity flow meter. Velocity measurement protocols are based upon United States Geological Survey (USGS) stream gaging methods. Flow rates are measured in 'cells' along a cross-section of the stream. Calculation of cell area and measurement of flow rate through each cell allows for the computation of total flow through the cross-section. Units are generally in cfs (cubic feet per second; 1 cfs = 448.8 gallons per minute).

Having only begun stream gauging measurements in June 2020, only a small set of measurements have been made thus far (data appears in Appendix B). However, the average gain in stream flow between SG-2 and SG-3 was 2.25 cfs between June and December 2020. Both locations recorded their highest flows during the November 2020 monitoring round (this will likely be exceeded in the spring however). Lowest flows were recorded in August at SG-2 (0.08 cfs) and in September at SG-3 (1.92 cfs). Again, these values represent a limited data set thus far (June through December 2020), so it is premature to draw conclusions at this time or attempt to generate a stage-discharge relationship/rating curve.

7.0 WITHDRAWALS

In accordance with the contract with the Fryeburg Water Company, spring water volume withdrawn from PBH-1 is presented as total gallons recorded as offloaded at bottling facilities. Table 3 summarizes the 2020 monthly withdrawal volumes. Spring water withdrawals from PBH-1 totaled 131,128,607 gallons for the 2020 calendar year.

8.0 BIOLOGICAL MONITORING

To complement the biological investigations conducted by Normandeau Associates in the 2006 and 2008 field seasons, Poland Spring initiated a long-term biological monitoring program of Wards Brook beginning in 2009. Bio-monitoring, conducted every other year, was last completed by Stantec in 2019. Bio-monitoring is next scheduled to be conducted in 2021 and will appear in the 2021 annual report.

9.0 FINDINGS

This report represents the twelfth annual report for Evergreen Spring in Fryeburg, Maine prepared on behalf of Poland Spring and is a summary of hydrologic data collected from the Wards Brook Aquifer through the 2020 calendar year. Poland Spring also provides these data voluntarily to the Town of Fryeburg, Fryeburg Water District and the Fryeburg Water Company on a monthly basis in the form of a monthly report that began with the December 2008 report. These data provide an on-going comprehensive summary of hydrologic conditions in the Wards Brook Aquifer. Findings for 2020 include the following:

- In 2020, Poland Spring purchased 131,128,607 gallons of spring water from the FWC;
- 131,128,607 gallons represents approximately 60% of the sustainable amount of water available for commercial withdrawal as determined by Emery & Garrett Groundwater, Inc.;
- Normal seasonal variations of groundwater levels were observed through 2020 at all monitoring well locations;
- Highest groundwater elevations for 2020 were observed in April and May, while the lowest groundwater elevations were primarily recorded between September and December;
- Surface water levels showed normal seasonal variation in 2020;

- Total precipitation for the 2020 calendar year was 39.33 inches, as recorded by the on-site rain gauge, 10.37 inches less than in 2019, and approximately nine inches below the 29 year mean.

10.0 CONCLUSIONS

Based on our analysis of groundwater and surface water data collected in Fryeburg, Luetje Geological Services and McDonald Morrissey Associates have not observed any adverse impact to waters of the State, water-related natural resources and existing uses as a result of the sale of water by the Fryeburg Water Company to Poland Spring.

If you have any questions regarding the data, explanations, or interpretations included in this report, please do not hesitate to contact Ed Luetje (207) 415-9898.

Sincerely,

Luetje Geological Services, LLC

Ed Luetje C.G.

McDonald Morrissey Associates, LLC

Michael Mobile, Ph.D.

cc: Fryeburg Water Company (Mr. George Weston)
Emery & Garrett Groundwater, Inc. (Mr. Dan Tinkham)
Poland Spring (Mr. Joshua Bowe)
Town of Fryeburg (Ms. Katie Haley)
Maine Water Company (Mr. Rick Knowlton)

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TABLE 1
FRYEBURG MONITORING PROGRAM PLAN

Monitoring Station	Frequency
Monitoring Wells	
TW-2 [1]	Monthly
TW-9	Monthly
MW-101 [2]	Monthly
MW-103 [7]	Monthly
MW-105	Monthly
MW-107	Monthly
MW-108	Monthly
MW-109	Monthly
MW-110	Monthly
MW-113	Monthly
MW-114	Monthly
Surface Water Stations	
WPMP-1 [3]	Monthly
WPSG-2A [4]	Monthly
SRMP-1 [5]	Monthly
LPSG-1 [6]	Monthly
SG-2 (Upstream gauging location)	Monthly
SG-3 (Downstream gauging location)	Monthly
Precipitation	
RG – On-site Rain Gauge	Continuous
ICAO Station KIZG (Fryeburg Airport)	Continuous
Withdrawal Data	
PBH-1	Continuous
Stream Flow Measurement (Wards Brook) [8]	
SG-2 (upstream)	Monthly
SG-3 (downstream)	Monthly

Notes:
1. TW refers to 'test well'.
2. MW refers to 'monitoring well'.
3. WPMP refers to 'Wards Pond Monitoring Point'.
4. WPSG refers to 'Wards Pond Staff Gauge'.
5. SRMP refers to 'Saco River Monitoring Point'.
6. LPSG refers to 'Lovewell Pond Staff Gauge'.
7. MW-103 was removed on July 28, 2020 at landowners' request.
8. Stream flow measurement initiated during the June 2020 monitoring event.

TABLE 2
2020 PRECIPITATION SUMMARY

MONTH	*ON-SITE RAIN GAUGE DATA (inches)*	*FRYEBURG EASTERN SLOPES AIRPORT (ICAO STATION KIZG)[1] (inches)*
Jan 2020	3.44	3.15
Feb 2020	3.44	3.43
Mar 2020	2.81	2.80
Apr 2020	5.77	5.76
May 2020	3.05	3.17
Jun 2020	3.32	3.36
Jul 2020	3.42	3.99
Aug 2020	2.53	2.52
Sep 2020	0.67	0.72
Oct 2020	5.15	4.30
Nov 2020	3.52	4.49
Dec 2020	2.21	3.25
2020 Total	**39.33**	**40.94**

Notes: 1. KIZG station updated data. KIZG data presented in the monthly reports is preliminary, and is rechecked for this annual report.

TABLE 3
PBH-1 2020 WITHDRAWAL SUMMARY

Month	Monthly Total (gal)
Jan 2020	15,077,190
Feb 2020	9,552,805
Mar 2020	14,136,570
Apr 2020	3,037,760
May 2020	3,301,895
Jun 2020	10,709,460
Jul 2020	16,570,000
Aug 2020	16,659,907
Sep 2020	15,580,850
Oct 2020	11,276,810
Nov 2020	7,080,990
Dec 2020	8,144,370
2020 Total	**131,128,607**

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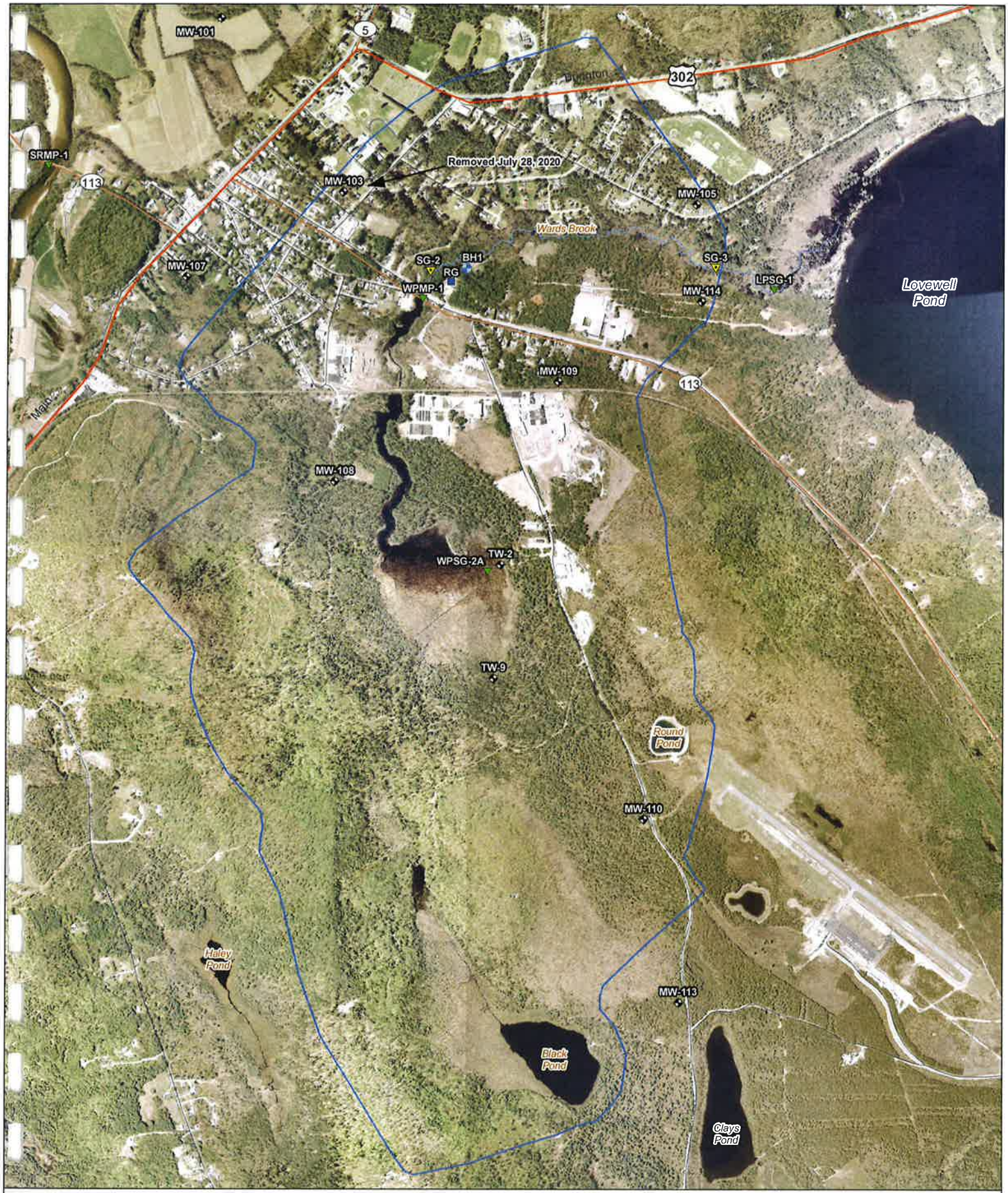


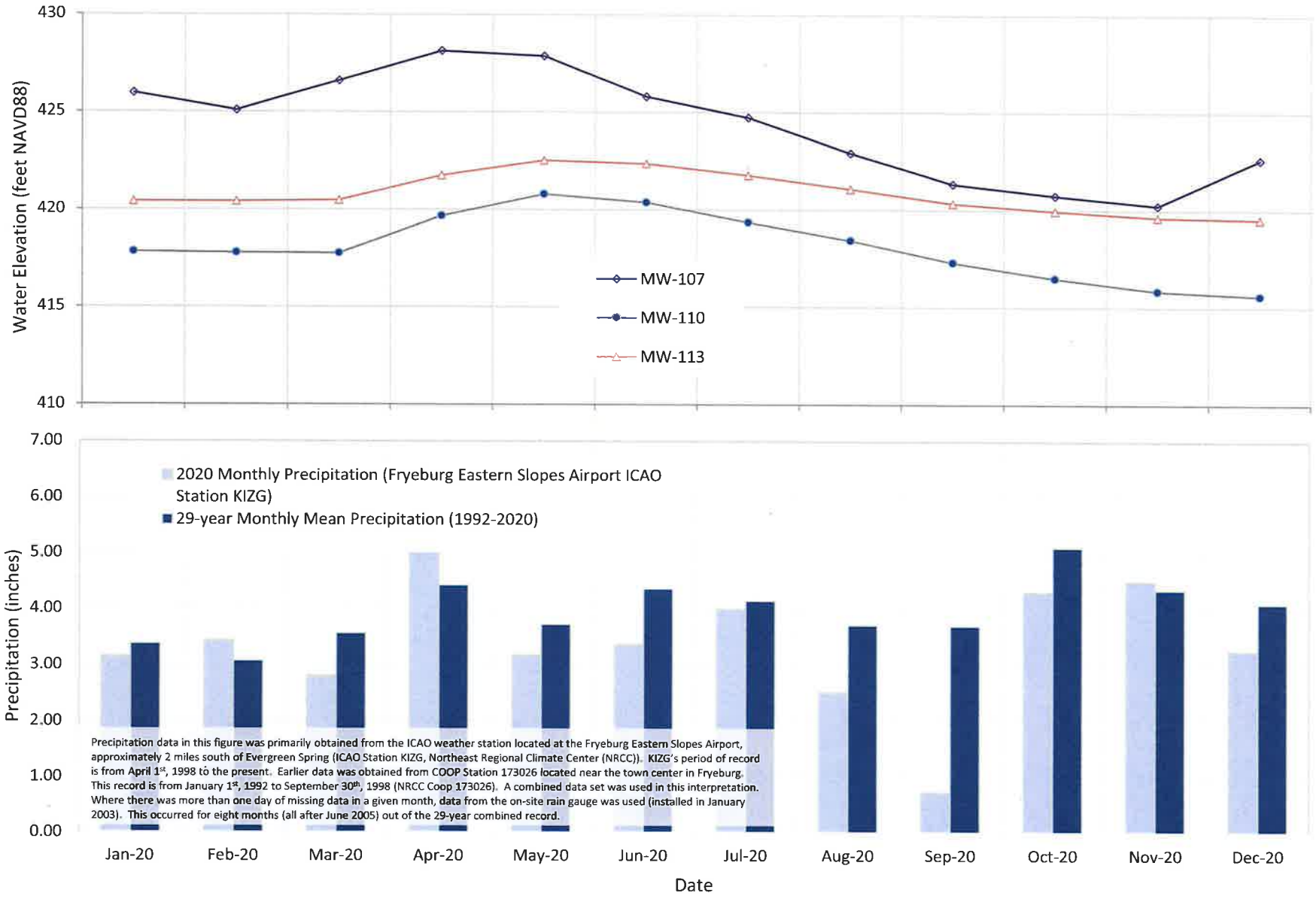
FIGURE 1
2020 ANNUAL AQUIFER MONITORING REPORT
EVERGREEN SPRING
FRYEBURG, MAINE

NOTES:
1. ALL GENERAL DATA LAYERS ACQUIRED FROM THE MAINE OFFICE OF GIS AND/OR ESRI ONLINE.

DATE:
2/19/2021

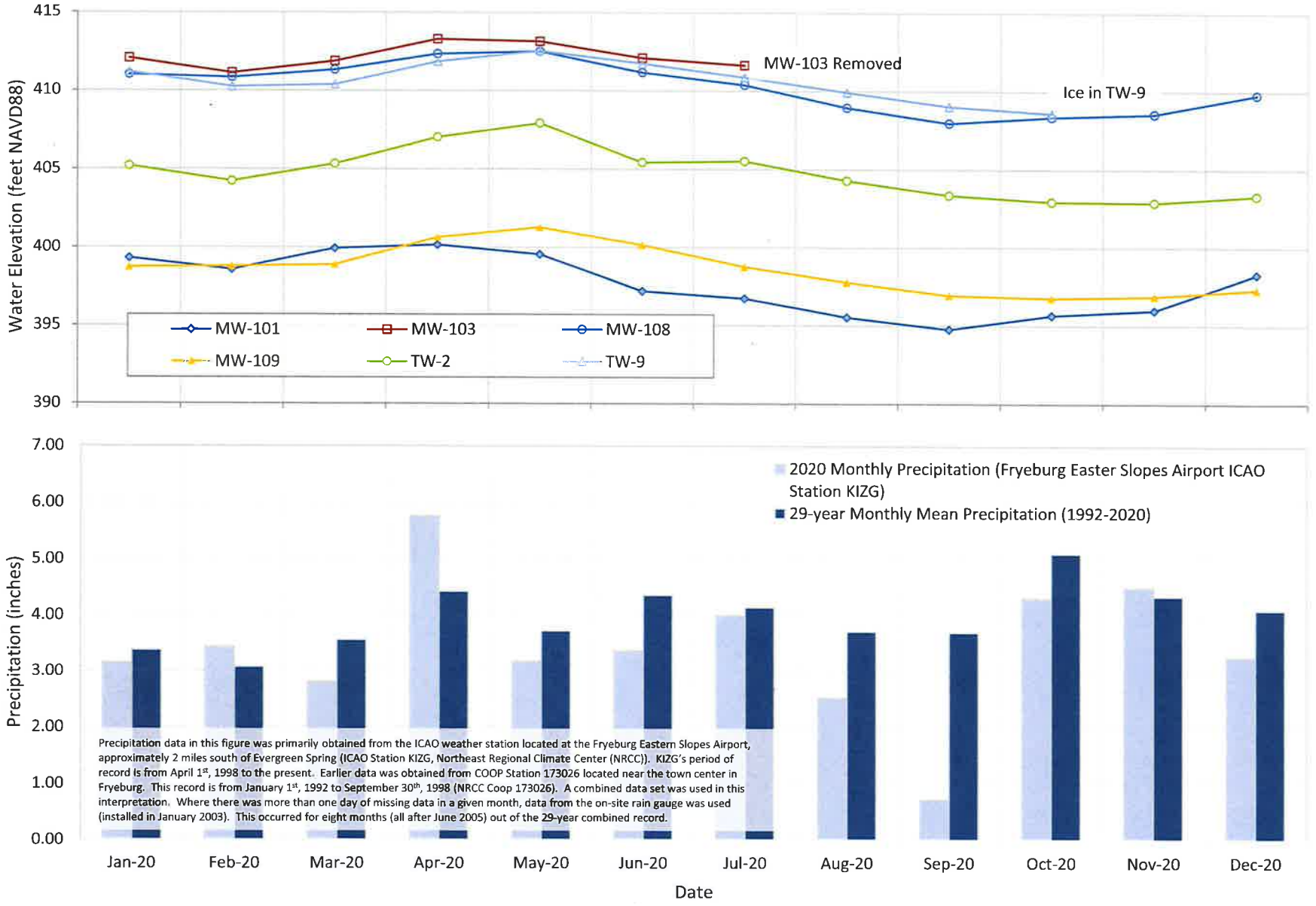
LUETJE GEOLOGICAL SERVICES, LLC
153 FLYING POINT ROAD
FREEPORT, ME 04032
207-415-9898
ed@luetjegeological.com

FIGURE 2A
HYDROGRAPH FOR 2020 GROUNDWATER ELEVATIONS (ELEVATION 410 - 430 FEET NAVD88)



Precipitation data in this figure was primarily obtained from the ICAO weather station located at the Fryeburg Eastern Slopes Airport, approximately 2 miles south of Evergreen Spring (ICAO Station KIZG, Northeast Regional Climate Center (NRCC)). KIZG's period of record is from April 1st, 1998 to the present. Earlier data was obtained from COOP Station 173026 located near the town center in Fryeburg. This record is from January 1st, 1992 to September 30th, 1998 (NRCC Coop 173026). A combined data set was used in this interpretation. Where there was more than one day of missing data in a given month, data from the on-site rain gauge was used (installed in January 2003). This occurred for eight months (all after June 2005) out of the 29-year combined record.

FIGURE 2B
HYDROGRAPH FOR 2020 GROUNDWATER ELEVATIONS (ELEVATION 390 - 415 FEET NAVD88)



Precipitation data in this figure was primarily obtained from the ICAO weather station located at the Fryeburg Eastern Slopes Airport, approximately 2 miles south of Evergreen Spring (ICAO Station KIZG, Northeast Regional Climate Center (NRCC)). KIZG's period of record is from April 1st, 1998 to the present. Earlier data was obtained from COOP Station 173026 located near the town center in Fryeburg. This record is from January 1st, 1992 to September 30th, 1998 (NRCC Coop 173026). A combined data set was used in this interpretation. Where there was more than one day of missing data in a given month, data from the on-site rain gauge was used (installed in January 2003). This occurred for eight months (all after June 2005) out of the 29-year combined record.

FIGURE 2C

HYDROGRAPH FOR 2020 GROUNDWATER ELEVATIONS (ELEVATION 375 - 395 FEET NAVD88)

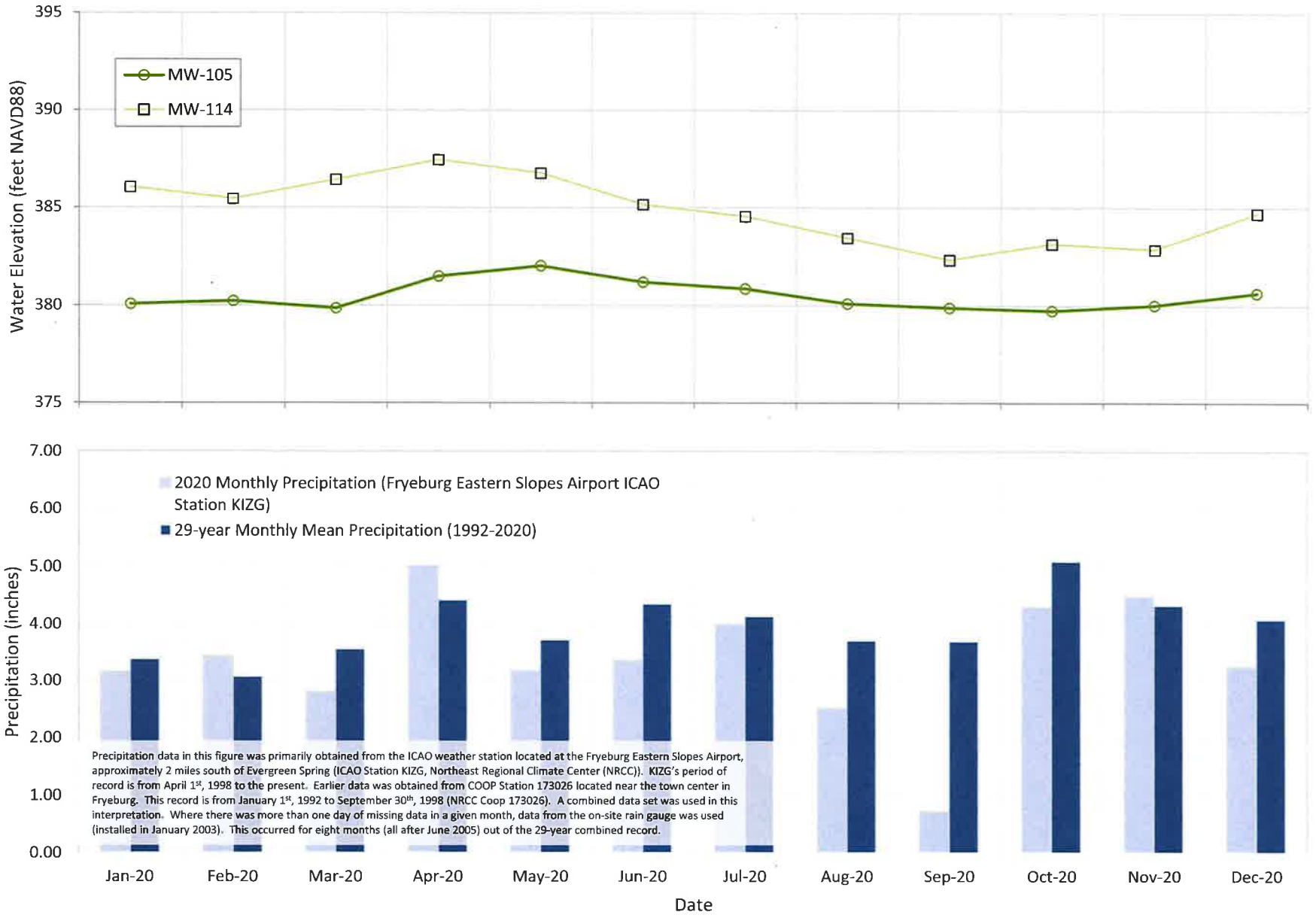


FIGURE 3
HYDROGRAPH FOR MW-108 AND OW-1214

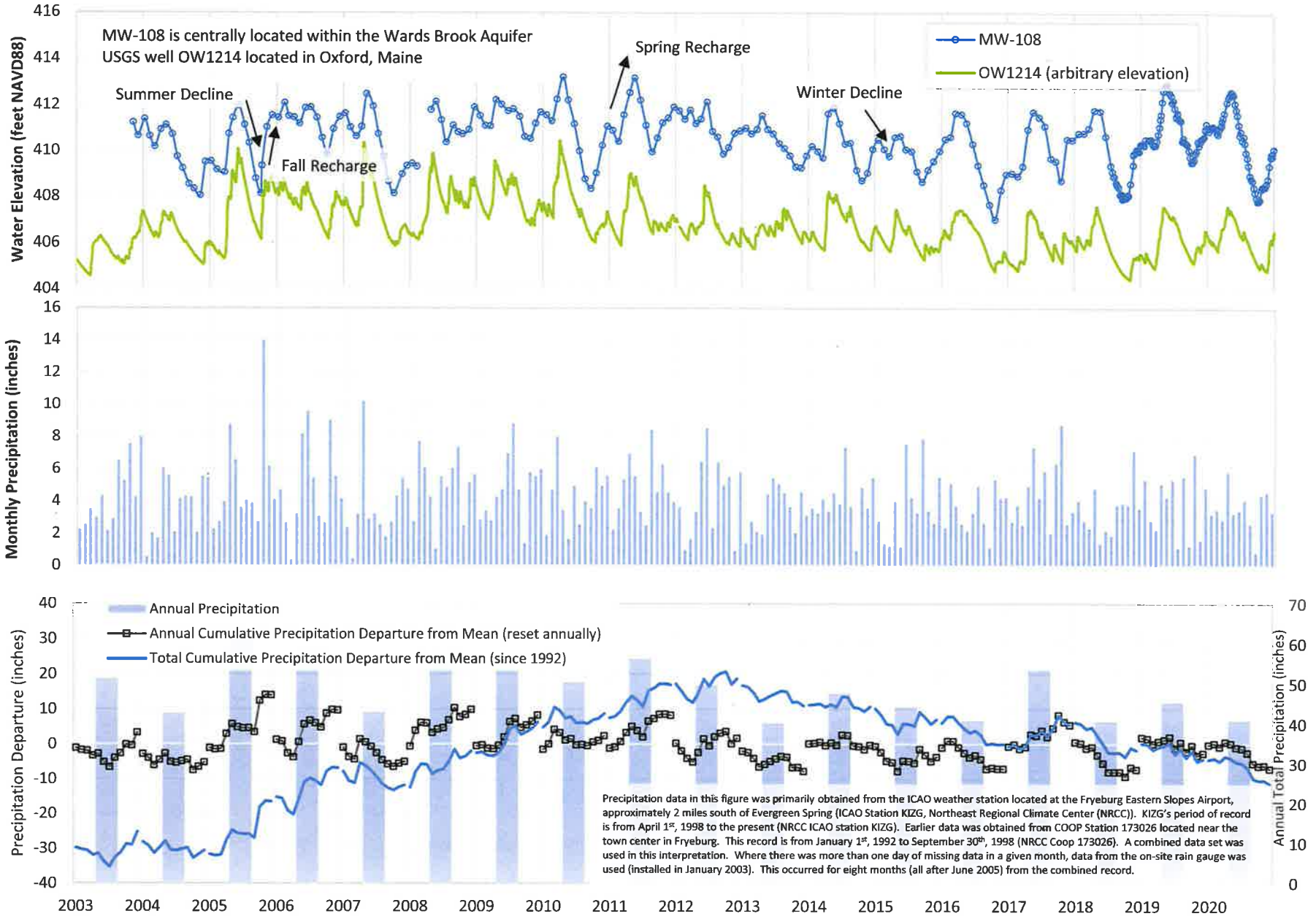
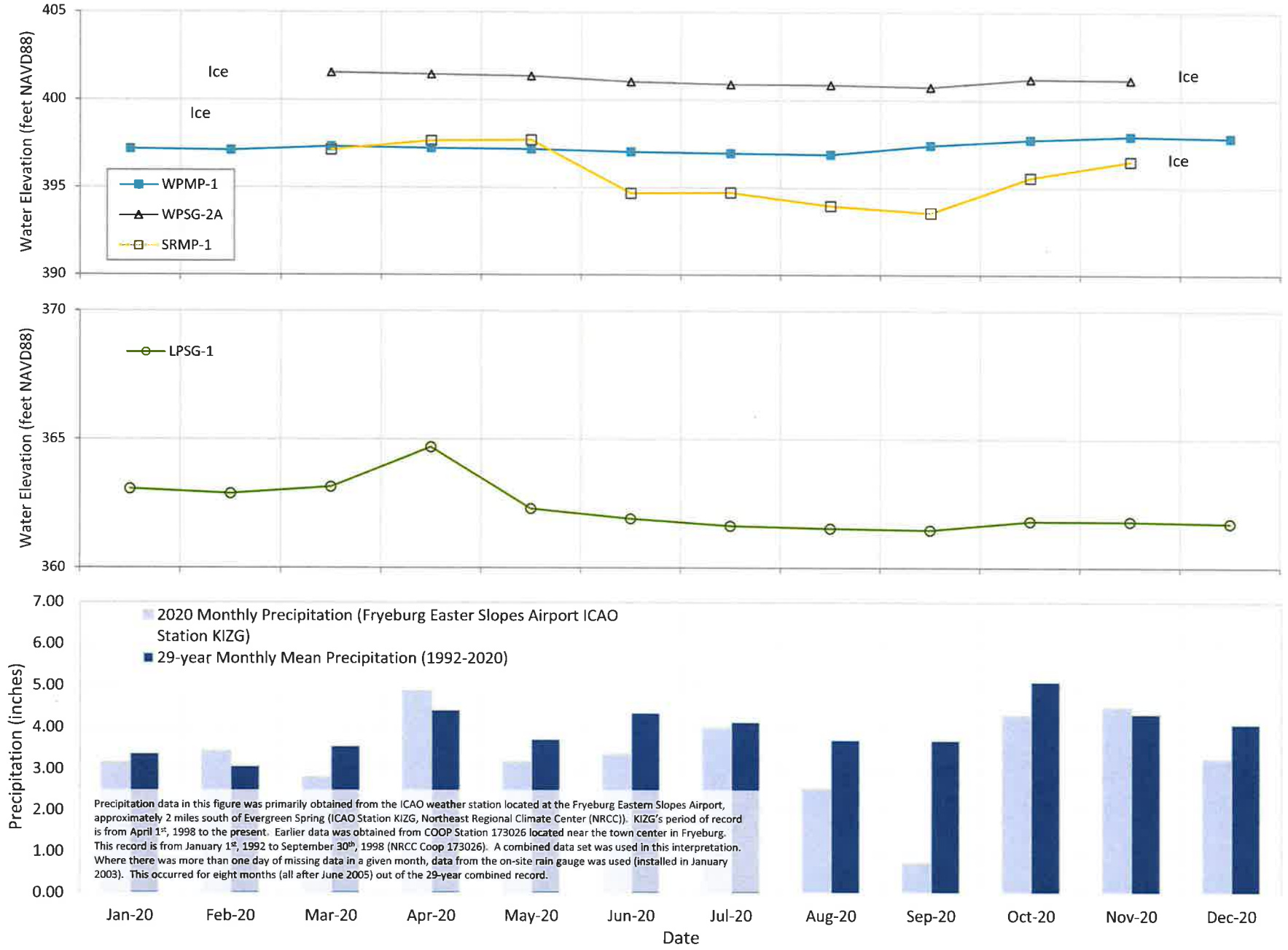


FIGURE 4
HYDROGRAPH FOR 2020 SURFACE WATER



Precipitation data in this figure was primarily obtained from the ICAO weather station located at the Fryeburg Eastern Slopes Airport, approximately 2 miles south of Evergreen Spring (ICAO Station KIZG, Northeast Regional Climate Center (NRCC)). KIZG's period of record is from April 1st, 1998 to the present. Earlier data was obtained from COOP Station 173026 located near the town center in Fryeburg. This record is from January 1st, 1992 to September 30th, 1998 (NRCC Coop 173026). A combined data set was used in this interpretation. Where there was more than one day of missing data in a given month, data from the on-site rain gauge was used (installed in January 2003). This occurred for eight months (all after June 2005) out of the 29-year combined record.

Appendices

Appendix A	Photographs
Appendix B	Groundwater and Surface Water Elevation Data, and Wards Brook Stream Flow Data

APPENDIX A

Photographs

Photographs A and AA: Measuring depth to water using a water level indicator at MW-114.

Photograph A

Photograph AA

Photograph B: WBSG-2 – Typical staff gage used for measuring surface water elevation.
Photograph BB: Lovewell Pond from boat ramp off Rt. 113 facing north (6/19/2020).

Photograph B

Photograph BB

Photograph C: On-site Rain Gage

APPENDIX B

Groundwater and Surface Water Elevation Data,
And Wards Brook Stream Flow Data
Fryeburg, Maine

APPENDIX B
GROUNDWATER AND SURFACE WATER ELEVATION DATA, AND WARDS BROOK STREAM FLOW DATA
FRYEBURG, MAINE

Monitoring Wells	MW-101 [2]	MW-103 [7]	MW-105	MW-107	MW-108	MW-109	MW-110	MW-113	MW-114	TW-2	TW-9
Reference Elevation (feet NAVD88) [1]	408.32	421.42	404.98	432.05	419.88	420.08	461.84	441.11	405.25	404.19	409.17
1/23/2020	399.29	412.07	380.04	425.95	411.02	398.71	417.81	420.40	386.04	405.21	411.20
2/21/2020	398.55	411.14	380.21	425.07	410.84	398.77	417.76	420.40	385.44	404.23	410.24
3/18/2020	399.90	411.89	379.84	426.58	411.33	398.86	417.74	420.46	386.43	405.32	410.38
4/21/2020	400.14	413.27	381.47	428.12	412.34	400.63	419.66	421.73	387.45	407.03	411.86
5/19/2020	399.52	413.13	382.00	427.86	412.50	401.28	420.78	422.52	386.76	407.93	412.53
6/19/2020	397.18	412.10	381.18	425.77	411.18	400.14	420.36	422.35	385.14	405.44	411.75
7/22/2020	396.72	411.66 [7]	380.84	424.72	410.37	398.73	419.36	421.76	384.54	405.53	410.87
8/20/2020	395.52		380.08	422.91	408.95	397.76	418.43	421.07	383.44	404.30	409.92
9/24/2020	394.76		379.87	421.32	407.97	396.93	417.30	420.33	382.32	403.35	409.03
10/21/2020	395.64		379.72	420.73	408.36	396.76	416.50	419.94	383.13	402.94	408.59
11/18/2020	395.97		380.01	420.23	408.56	396.88	415.85	419.62	382.85	402.89	ice
12/21/2020	398.26		380.63	422.58	409.78	397.30	415.59	419.53	384.70	403.31	ice

Surface Water Stations	LPSG-1 [3]	WPMP-1 [4]	SRMP-1 [5]	WPSG-2A [6]	SG-2		SG-3	
Reference Elevation (feet NAVD88)	364.76 364.54	401.22	418.85	402.59 402.33	389.41		370.7	
					elevation	flow (cfs [8])	elevation	flow (cfs)
1/23/2020	363.08	397.17	ice	ice				
2/21/2020	362.90	397.10	ice	ice				
3/18/2020	363.16	397.32	397.15	401.57				
4/21/2020	364.70	397.22	397.65	401.47				
5/19/2020	362.32	397.17	397.70	401.37				
6/19/2020	361.92	397.02	394.67	401.05	386.64	0.91	367.57	3.71
7/22/2020	361.64	396.94	394.71	400.91	386.64	0.74	367.51	3.00
8/20/2020	361.54	396.88	393.95	400.88	386.49	0.08	367.47	2.19
9/24/2020	361.48	397.40	393.55	400.76	386.54	0.13	367.46	1.92
10/21/2020	361.82	397.72	395.57	401.22	386.89	1.66	367.67	3.92
11/18/2020	361.81	397.92	396.50	401.17	386.95	2.24	367.71	4.64
12/21/2020	361.74	397.82	ice	ice	386.86	1.83	367.66	3.97

NOTES:

1. NAVD88 is the North American Vertical Datum 1988. Elevations are in feet NAVD. Measuring points were re-surveyed in November 2015 by Bliss Associates.

2. 'MW' refers to 'monitoring well'.

3. 'LPSG' refers to 'Lovewell Pond Staff Gauge'.
364.76 = old reference elevation (May, 2019)
364.54 = new reference elevation (May, 2020)

4. 'WPMP' refers to 'Wards Pond Monitoring Point'.
401.22 = reference elevation (November 2015, Bliss)

5. 'SRMP' refers to 'Saco River Monitorinng Point'.
418.85 = reference elevation (November 2015, Bliss)

6. 'WPSG' refers to 'Wards Pond Staff Gauge'.
402.33 = old reference elevation (May, 2019)
402.37 = new reference elevation (May, 2020)

7. MW-103 removed on July 28, 2020 at landowners request.

8. cfs = cubic feet per second

APPENDIX B
GROUNDWATER AND SURFACE WATER ELEVATION DATA, AND WARDS BROOK STREAM FLOW DATA
FRYEBURG, MAINE

MW-108 DATA

Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)
11/6/2003	411.23	2/8/2007	411.03	6/21/2010	411.18	10/21/2013	409.31	2/21/2017	408.91	12/13/2018	410.05
12/4/2003	410.67	3/12/2007	410.65	7/19/2010	409.99	11/20/2013	409.27	3/21/2017	409.34	12/19/2018	410.02
1/9/2004	411.38	4/10/2007	411.06	8/19/2010	408.76	12/20/2013	409.79	4/19/2017	410.97	12/20/2018	409.99
2/6/2004	410.65	5/8/2007	412.49	9/20/2010	408.35	1/20/2014	410.21	5/18/2017	411.72	12/27/2018	410.30
3/4/2004	410.18	6/12/2007	411.94	10/20/2010	409.03	2/20/2014	409.98	6/19/2017	411.50	1/2/2019	410.32
4/6/2004	410.93	7/11/2007	410.75	11/22/2010	410.24	3/19/2014	409.70	7/20/2017	411.11	1/8/2019	410.33
5/4/2004	411.12	8/9/2007	409.75	12/20/2010	411.08	4/18/2014	411.64	8/23/2017	409.68	1/16/2019	410.28
6/8/2004	410.73	9/5/2007	408.65	1/19/2011	410.90	5/19/2014	411.89	9/19/2017	409.56	1/17/2019	410.26
7/5/2004	409.73	10/4/2007	408.14	2/18/2011	410.42	6/19/2014	411.21	10/18/2017	408.71	1/25/2019	410.53
8/3/2004	409.23	11/18/2007	408.98	3/21/2011	411.58	7/21/2014	410.32	11/20/2017	410.53	2/9/2019	410.52
9/7/2004	408.53	12/14/2007	409.34	4/22/2011	412.56	8/18/2014	410.36	12/19/2017	410.50	2/15/2019	410.50
10/4/2004	408.33	1/11/2008	409.44	5/20/2011	413.18	9/22/2014	409.17	1/22/2018	410.80	2/18/2019	410.50
11/8/2004	408.05	2/8/2008	409.31	6/20/2011	412.22	10/20/2014	408.71	2/21/2018	410.81	2/23/2019	410.54
12/6/2004	409.50	3/20/2008	nr	7/20/2011	411.12	11/20/2014	409.05	3/19/2018	411.02	3/5/2019	410.33
1/6/2005	409.53	4/25/2008	411.79	8/22/2011	409.96	12/19/2014	410.09	4/18/2018	411.80	3/12/2019	410.25
2/7/2005	409.17	5/22/2008	412.15	9/21/2011	410.57	1/19/2015	410.51	5/21/2018	411.76	3/19/2019	410.29
3/21/2005	409.06	6/20/2008	411.34	10/19/2011	411.23	2/20/2015	410.08	6/19/2018	410.67	3/20/2019	410.27
4/14/2005	410.75	7/17/2008	410.38	11/21/2011	411.45	3/19/2015	409.78	7/18/2018	409.37	3/28/2019	410.47
5/5/2005	411.43	8/25/2008	411.11	12/21/2011	411.92	4/20/2015	410.62	7/27/2018	409.11	4/4/2019	410.77
6/6/2005	411.97	9/19/2008	410.83	1/20/2012	411.76	5/20/2015	410.67	8/2/2018	408.90	4/11/2019	411.08
7/8/2005	411.13	10/15/2008	410.75	2/20/2012	411.39	6/18/2015	410.07	8/6/2018	408.90	4/16/2019	411.42
8/2/2005	410.34	11/19/2008	410.93	3/20/2012	411.79	7/21/2015	409.99	8/16/2018	408.62	4/19/2019	411.62
9/7/2005	408.77	12/19/2008	411.91	4/20/2012	411.20	8/19/2015	409.11	8/20/2018	408.56	4/26/2019	412.18
10/5/2005	408.13	1/19/2009	411.54	5/18/2012	411.40	9/17/2015	408.65	8/21/2018	408.51	5/2/2019	412.66
10/11/2005	409.34	2/16/2009	411.11	6/20/2012	412.14	10/19/2015	409.18	8/30/2018	408.42	5/10/2019	412.85
11/8/2005	411.03	3/17/2009	411.09	7/20/2012	410.87	11/18/2015	409.55	9/7/2018	408.11	5/20/2019	412.91
12/7/2005	411.55	4/16/2009	412.23	8/17/2012	410.63	12/22/2015	410.01	9/13/2018	408.14	5/22/2019	412.82
1/10/2006	411.44	5/18/2009	412.03	9/18/2012	409.87	1/22/2016	410.53	9/19/2018	407.97	6/6/2019	412.56
2/13/2006	412.09	6/22/2009	411.75	10/17/2012	410.16	2/19/2016	410.64	9/20/2018	407.91	6/14/2019	412.46
3/7/2006	411.52	7/20/2009	411.83	11/19/2012	410.79	3/18/2016	411.67	9/29/2018	407.95	6/19/2019	412.16
4/5/2006	411.46	8/24/2009	411.50	12/20/2012	410.89	4/20/2016	411.62	10/7/2018	407.97	6/26/2019	412.23
5/5/2006	411.19	9/21/2009	410.63	1/21/2013	411.01	5/18/2016	411.24	10/10/2018	407.96	7/3/2019	411.91
6/6/2006	411.87	10/22/2009	410.54	2/20/2013	410.77	6/20/2016	410.32	10/19/2018	408.10	7/11/2019	411.52
7/6/2006	411.90	11/20/2009	411.20	3/22/2013	410.96	7/19/2016	409.38	10/23/2018	408.07	7/18/2019	411.69
8/8/2006	411.44	12/18/2009	411.70	4/19/2013	411.55	8/19/2016	408.52	11/2/2018	408.58	7/19/2019	411.64
9/5/2006	410.56	1/19/2010	411.57	5/20/2013	410.96	9/20/2016	407.67	11/18/2018	409.40	7/24/2019	411.46
10/4/2006	409.84	2/18/2010	411.31	6/19/2013	410.77	10/21/2016	407.03	11/19/2018	409.86	7/31/2019	411.38
11/7/2006	410.96	3/18/2010	412.26	7/22/2013	410.34	11/22/2016	408.30	11/20/2018	409.88	8/6/2019	411.35
12/12/2006	411.49	4/20/2010	413.22	8/19/2013	410.12	12/21/2016	408.99	11/30/2018	409.95	8/14/2019	410.46
1/10/2007	411.64	5/19/2010	412.22	9/19/2013	409.80	1/20/2017	409.04	12/6/2018	410.08	8/19/2019	410.60

APPENDIX B
GROUNDWATER AND SURFACE WATER ELEVATION DATA, AND WARDS BROOK STREAM FLOW DATA
FRYEBURG, MAINE

MW-108 DATA, cont.

Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)	Date	Groundwater Elevation (NAVD88)
8/21/2019	410.49	4/30/2020	412.48	12/30/2020	410.10						
8/28/2019	410.41	5/8/2020	412.61								
9/4/2019	410.36	5/14/2020	412.58								
9/11/2019	410.31	5/19/2020	412.50								
9/19/2019	410.05	5/21/2020	412.48								
9/26/2019	409.77	5/30/2020	412.11								
10/4/2019	409.52	6/5/2020	411.84								
10/11/2019	409.53	6/11/2020	411.60								
10/18/2019	409.63	6/19/2020	411.18								
10/24/2019	409.91	6/26/2020	410.73								
10/31/2019	410.02	7/1/2020	410.88								
11/8/2019	410.44	7/10/2020	410.49								
11/14/2019	410.27	7/17/2020	410.67								
11/19/2019	410.41	7/22/2020	410.37								
11/21/2019	410.43	7/29/2020	409.96								
11/26/2019	410.55	8/6/2020	409.72								
12/5/2019	410.60	8/12/2020	409.39								
12/12/2019	410.66	8/20/2020	408.95								
12/19/2019	410.95	8/26/2020	408.80								
12/20/2019	411.00	9/3/2020	408.71								
12/24/2019	411.21	9/10/2020	408.43								
1/2/2020	411.03	9/17/2020	408.20								
1/8/2020	410.91	9/24/2020	407.97								
1/17/2020	411.04	10/1/2020	407.82								
1/22/2020	411.07	10/7/2020	407.83								
1/30/2020	411.10	10/13/2020	407.88								
2/3/2020	411.05	10/21/2020	408.36								
2/12/2020	411.02	10/28/2020	408.43								
2/21/2020	410.84	11/4/2020	408.43								
2/26/2020	410.77	11/11/2020	408.43								
3/4/2020	411.00	11/18/2020	408.56								
3/12/2020	411.11	11/19/2020	408.60								
3/17/2020	411.17	11/27/2020	408.78								
3/18/2020	411.33	12/4/2020	409.37								
3/24/2020	411.48	12/13/2020	409.75								
3/31/2020	411.69	12/16/2020	409.87								
4/15/2020	412.16	12/21/2020	409.78								
4/23/2020	412.38	12/22/2020	409.92								