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Madison, WI 53717

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April 6, 2017

Mr. Chad Wiese
Madison Metropolitan School District
Building Services
4711 Pflaum Road
Madison, WI 53718

Subject: Water Testing for Lead
Lapham Elementary School
1045 E. Dayton St.

Dear Mr. Wiese:

As requested by the Madison Metropolitan School District (MMSD), TRC Environmental Corporation (TRC) performed testing for lead in water at Lapham Elementary School.

Testing Procedures

Water testing was performed consistent with the United States Environmental Protection Agency's (USEPA's) guidance document "3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance (USEPA 2006)." The 3Ts document suggests an action limit of 20 parts per billion (ppb) for lead, but MMSD has selected a more conservative action limit of 15 ppb.

TRC collected samples from cold water outlets on the interior of the buildings, including:

- hallway drinking fountains,
- classroom drinking fountains,
- water bottle refill stations,
- kitchen food preparation sinks,
- Family and Consumer Education (FACE) classroom sinks,
- faculty lounge sinks,
- nurse's office sinks,
- ice machines,

- taps nearest the incoming source water supply, and
- swimming pools.

Preliminary sample locations were identified by maps provided by MMSD. Following completion of sampling, TRC prepared a map of each school annotated with the final sample locations and identification numbers for each outlet. See Appendix A: Location Map.

Water sampling was conducted on March 22 & 25, 2017. During sample collection, each 250 mL bottle was marked with a school identification number (016) followed by the unique sample point identifier (e.g., 016-1-A, 016-1-B). Consistent with USEPA guidance, two samples were collected from each of the cold water outlets being tested. The first sample collected was the "first draw" sample (also called an "A sample"). The first draw sample is the first flow of water from the outlet into the bottle and represents the water standing in the fixture. The second "flush" sample (also called a "B sample") was collected into a new sample bottle after the water had been allowed to continuously flow from the outlet for 30 seconds. The flush sample represents the water from the plumbing line behind the wall and outlet. Flush samples from refrigerated taps were sampled after 15 minutes of continuous flow (rather than 30 seconds) to account for water that resides in the cold water reservoir. At the tap nearest the incoming source water supply, only a single flush sample was collected. With assistance from MMSD and school staff, TRC attempted to collect samples after the tap was left unused for a period of 8 hours, but no longer than 18 hours, as recommended by the USEPA guidance. This required sampling in the early morning hours and over weekends. Upon completion of a sampling event, the sample bottles were packaged and shipped under proper chain-of-custody to TestAmerica in Savannah, GA – a Wisconsin NR 149 certified drinking water laboratory (certification #999819810).

Analytical Method

Analysis for lead was performed using the EPA Method 200.8 (inductively-coupled plasma with mass spectrometry) and achieved detection limits of 1.0 ppb or less.

Samples Collected and Analytical Results

TRC assessed a total of 21 fixtures within this school. Fixtures that were broken or not in use were documented as such and not sampled.

Of the 18 first draw samples collected from the school, 1 had results greater than or equal to the MMSD action level of 15 ppb for lead. At locations where the "A sample" lead results were 15 ppb or greater, the lab analyzed the corresponding "B sample." Of the 1

"B samples" analyzed, 0 met or exceeded the 15 ppb action level. A table listing the analytical results by outlet sampled is included in Appendix B.

Recommendations

Although not required under the USEPA guidance, TRC agrees with MMSD's conservative decision to suspend the use of water at fixtures where the "A sample" result is 15 ppb or greater until that fixture has been repaired or replaced and re-tested. Once analysis of all lead water testing data from an individual building is complete, TRC can help devise a long-term operation and maintenance plan based on USEPA guidance.

TRC appreciates the opportunity to assist MMSD with this project. If you have any questions or comments concerning this report, please call James at (608) 826-3666.

Sincerely,

TRC Environmental Corporation

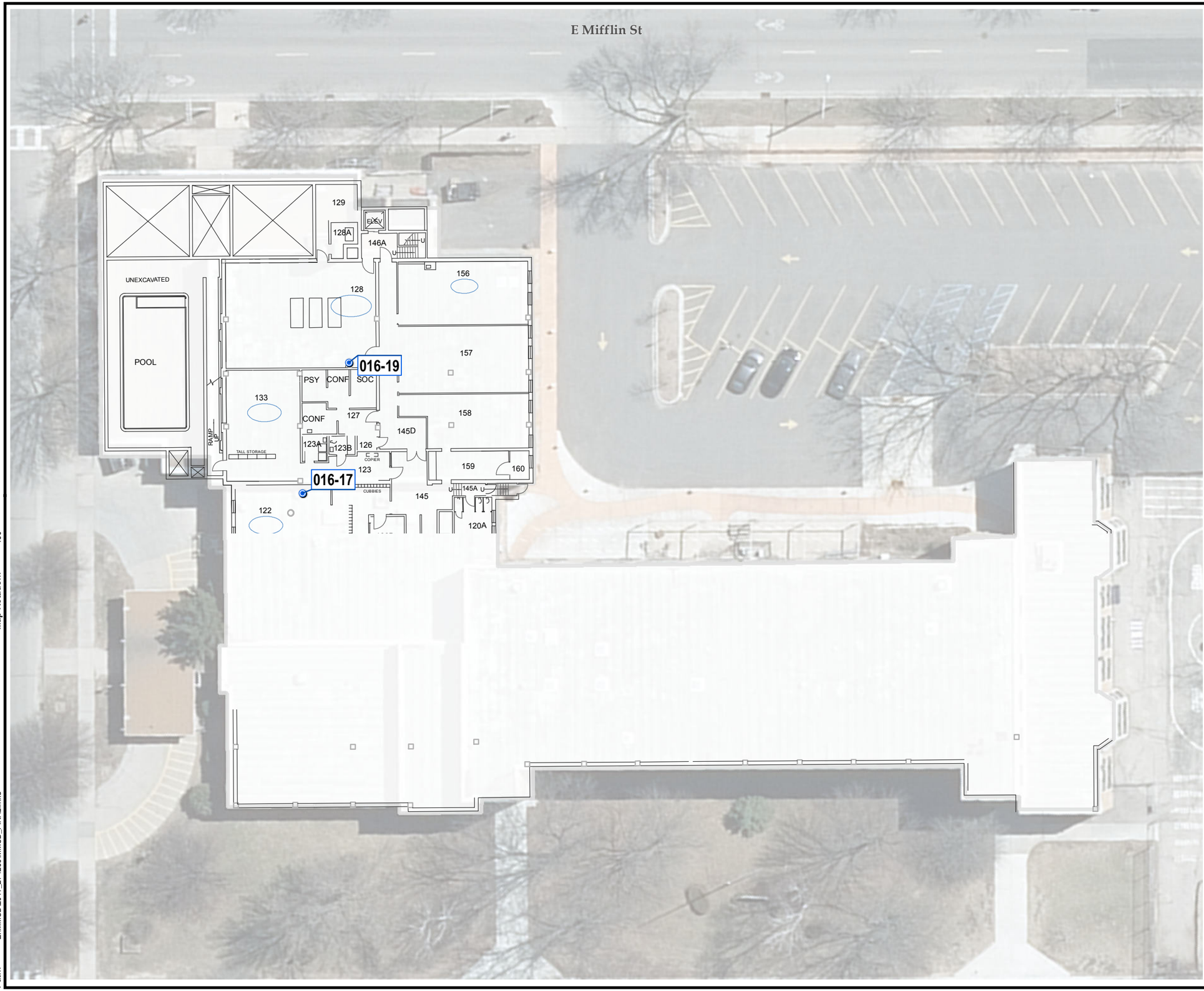
James E. Wedekind, P.G.
Project Manager

John B. Tweddale, P.G., CHMM
Principal Consultant

cc: Mike MacDonald

Appendix A

Location Map



LEGEND

- WATER SAMPLE LOCATION

NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2014.
2. SCHOOL FACILITIES PLAN DRAWINGS SUPPLIED BY MMSD.
3. SAMPLE LOCATIONS AND FEATURES SHOWN ARE APPROXIMATE.

1 " = 30 '

1:360

PROJECT:

MMSD WATER SAMPLING

TITLE:

LAPHAM (016)
FLOOR B SAMPLES

DRAWN BY:	J. PAPEZ	PROJ NO.:	274235
CHECKED BY:	A. SCHROEDER		
APPROVED BY:	J. WEDEKIND		**FIGURE 1.A**
DATE:	APRIL 2017		

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FILE NO.: MMSD_FINAL.mxd

TRC - GIS
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet (Foot US)
Map Rotation: 136
Plot Date: 4/4/2017, 08:30:45 AM by JPAPEZ -- LAYOUT: ANSI B(11"x17")
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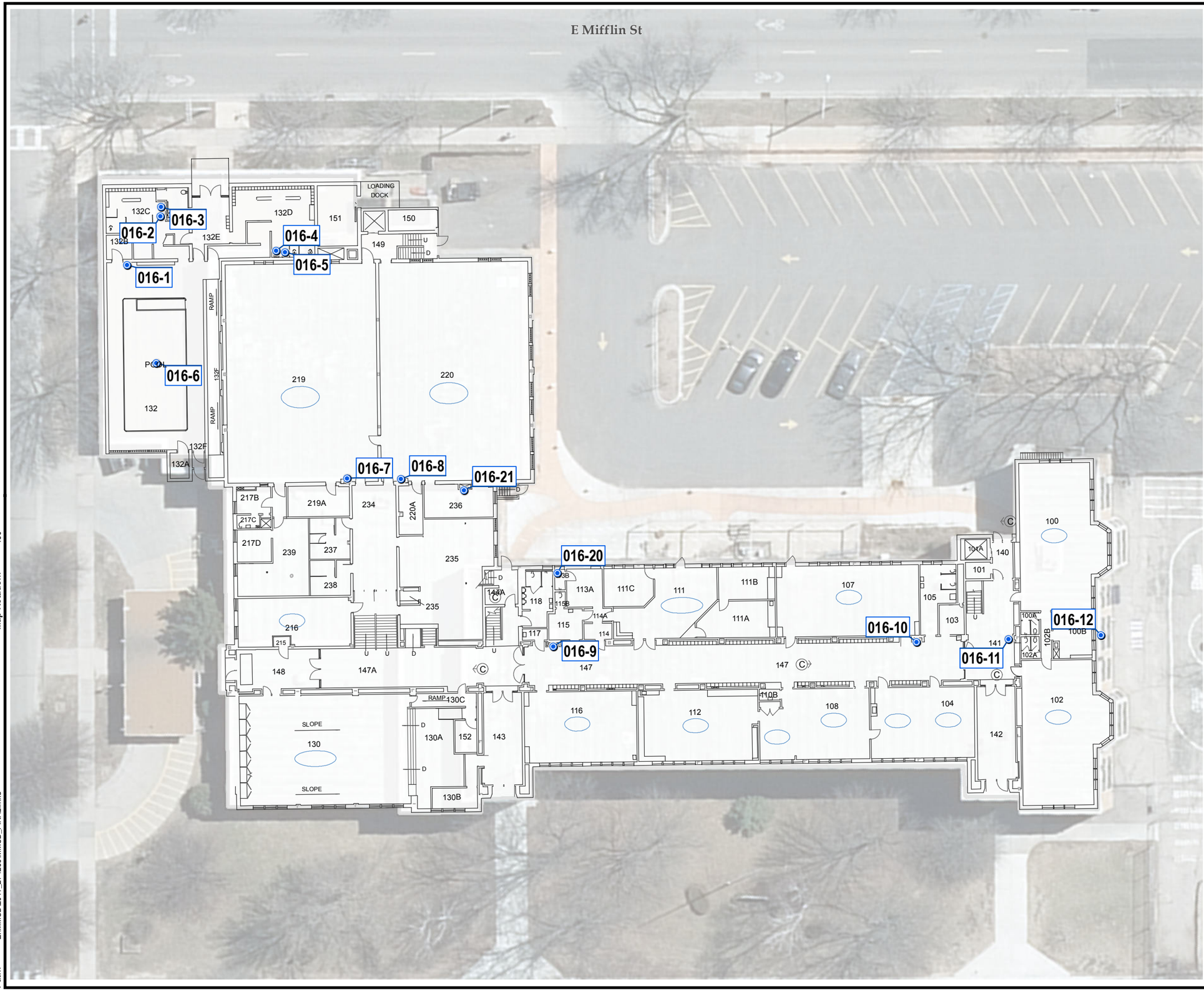

LEGEND

- WATER SAMPLE LOCATION

NOTES

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2. SCHOOL FACILITIES PLAN DRAWINGS SUPPLIED BY MMSD.
3. SAMPLE LOCATIONS AND FEATURES SHOWN ARE APPROXIMATE.

1 " = 30 '

1:360

PROJECT:

MMSD WATER SAMPLING

TITLE:

LAPHAM (016)
FLOOR 1 SAMPLES

DRAWN BY:	J. PAPEZ	PROJ NO.:	274235
CHECKED BY:	A. SCHROEDER		
APPROVED BY:	J. WEDEKIND		**FIGURE 1.B**
DATE:	APRIL 2017		

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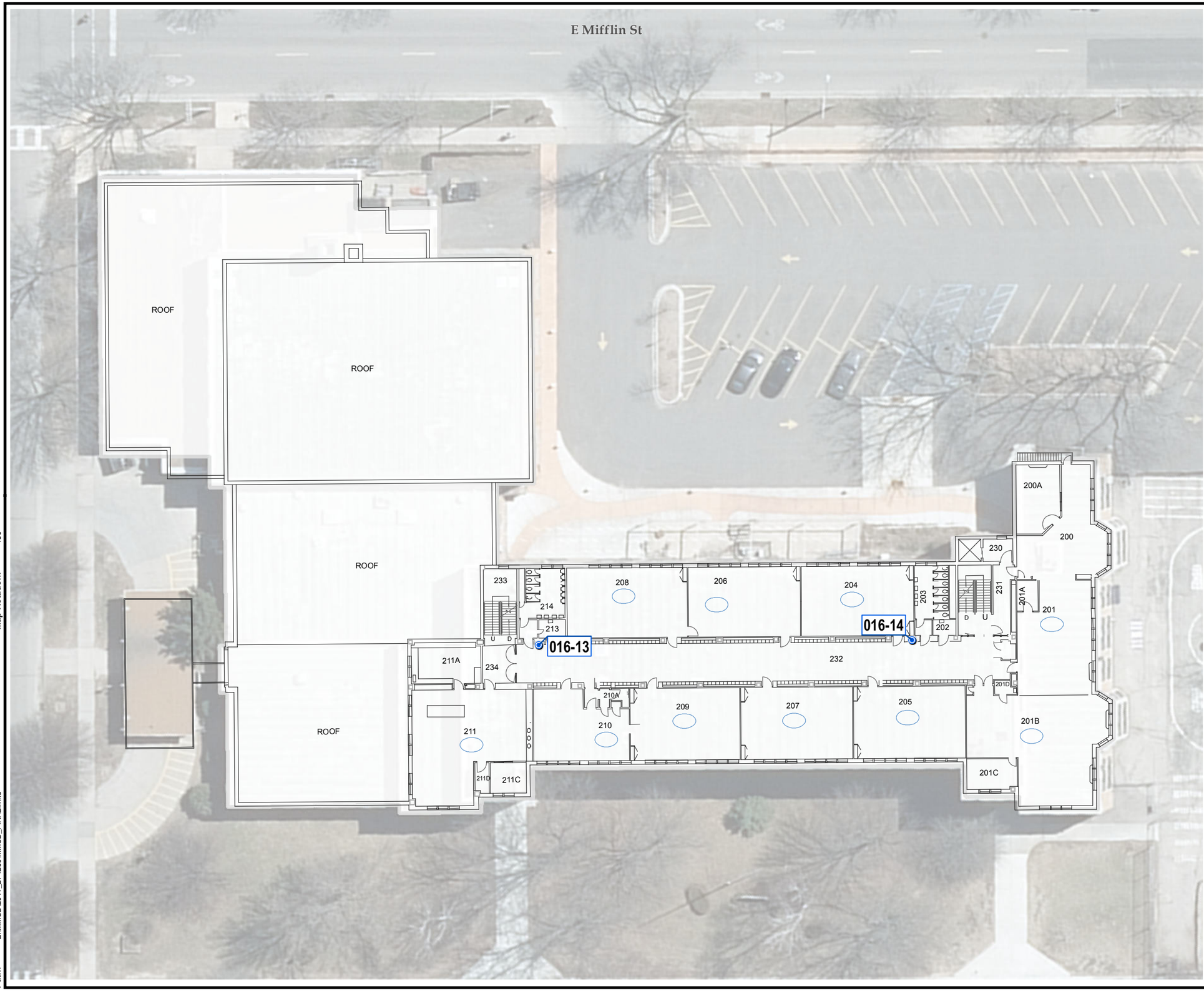

LEGEND

- WATER SAMPLE LOCATION

NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2014.
2. SCHOOL FACILITIES PLAN DRAWINGS SUPPLIED BY MMSD.
3. SAMPLE LOCATIONS AND FEATURES SHOWN ARE APPROXIMATE.

1 " = 30 '

1:360

PROJECT:

MMSD WATER SAMPLING

TITLE:

LAPHAM (016)
FLOOR 2 SAMPLES

DRAWN BY:	J. PAPEZ	PROJ NO.:	274235
CHECKED BY:	A. SCHROEDER		
APPROVED BY:	J. WEDEKIND		
DATE:	APRIL 2017		

FIGURE 1.C

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TRC - GIS
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Map Rotation: 136
Plot Date: 4/4/2017, 08:30:45 AM by JPAPEZ -- LAYOUT: ANSI B(11"x17")
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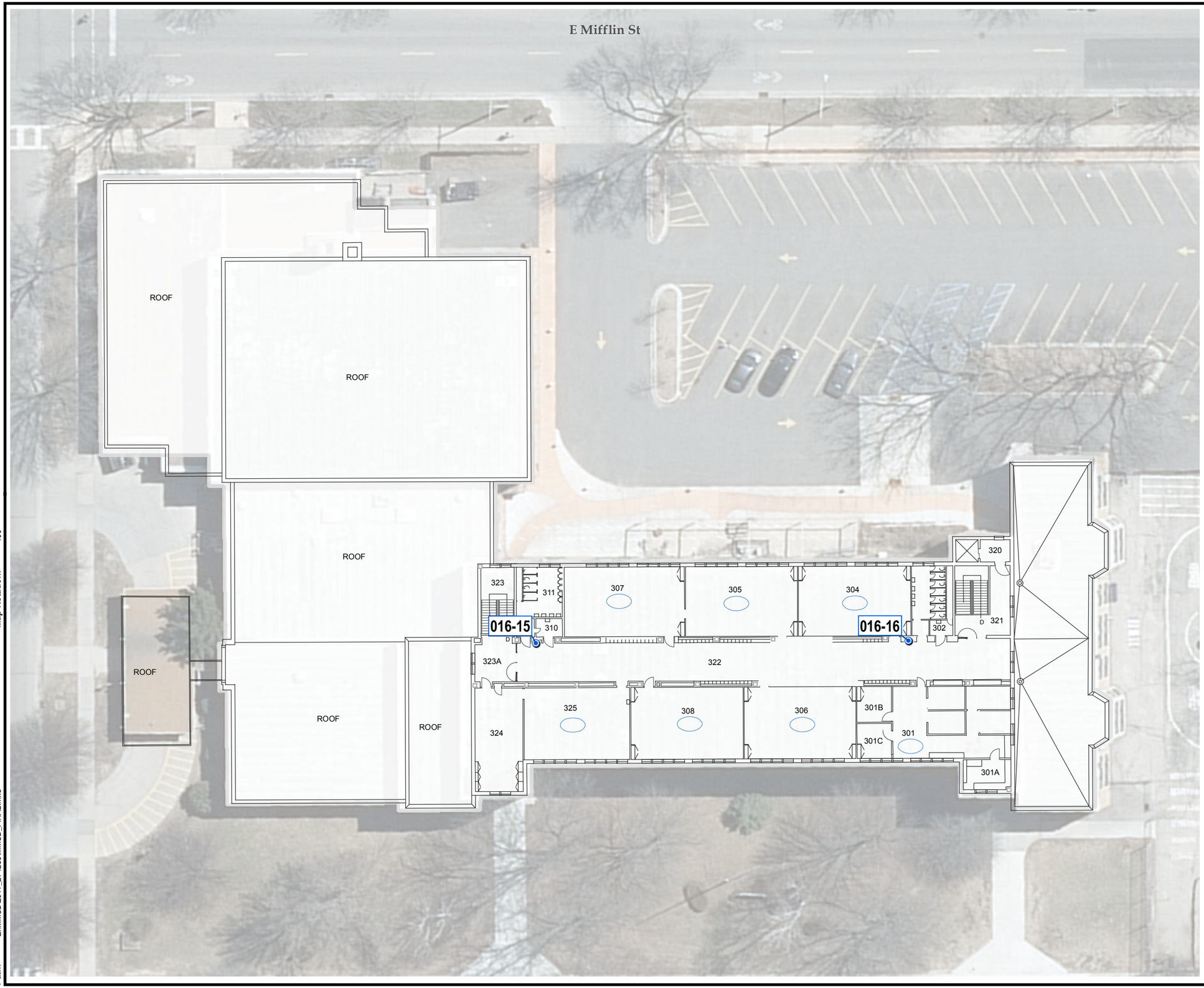

LEGEND

- WATER SAMPLE LOCATION

NOTES

1. BASE MAP IMAGERY FROM DANE COUNTY, 2014.
2. SCHOOL FACILITIES PLAN DRAWINGS SUPPLIED BY MMSD.
3. SAMPLE LOCATIONS AND FEATURES SHOWN ARE APPROXIMATE.

1 " = 30 '

1:360

PROJECT:

MMSD WATER SAMPLING

TITLE:

LAPHAM (016)
FLOOR 3 SAMPLES

DRAWN BY:	J. PAPEZ	PROJ NO.:	274235
CHECKED BY:	A. SCHROEDER		
APPROVED BY:	J. WEDEKIND		**FIGURE 1.D**
DATE:	APRIL 2017		

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Path: E:\MMSD\2017_274235\MMSD_FINAL.mxd

Appendix B

Analytical Results

Table 1
Summary of Lead Results
Lapham - 016
Madison, Wisconsin

SAMPLE NUMBER	FIXTURE TYPE	SAMPLE DATE	LEAD CONCENTRATION (ppb)
016-1-A	Bubbler/fountain	03/22/2017	7.2
016-2-A	Water cooler	03/22/2017	0.23 J
016-3-A	Water cooler	03/22/2017	0.52
016-4-A	Faucet/sink	03/22/2017	1.1
016-5-A	Faucet/sink	03/22/2017	0.68
016-6-A	Other - Pool	03/22/2017	<0.060
016-7-A	Bubbler/fountain	03/22/2017	2.1
016-8-A	Bubbler/fountain	03/22/2017	5.3
016-9-A	Water cooler	03/22/2017	0.37
016-10-A	Water cooler	03/22/2017	0.21 J
016-13-A	Water cooler	03/22/2017	0.43
016-14-A	Water cooler	03/22/2017	1.2
016-15-A	Water cooler	03/22/2017	1.7
016-16-A	Water cooler	03/22/2017	4.0
016-17-A	Bubbler/fountain	03/22/2017	0.53
016-19-A	Service connection	03/22/2017	1.2
016-20-A	Faucet/sink	03/22/2017	20
016-20-B	Faucet/sink	03/22/2017	1.0
016-21-A	Faucet/sink	03/25/2017	5.4

Notes:

1. Flush Sample (B) is only analyzed if the First Draw Sample (A) met or exceeded 15 ppb.
2. Service connection samples are flush samples (one per sample point), but sample IDs end with "A".
3. Samples were not able to be collected at sample points 11 (out of service) or 12 & 18 (no water).
4. J indicates that result is less than the reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.
5. The sample number is derived with the MMSD school identification number (e.g., 010) followed by a unique sample point identifier (e.g., 1, 2, 3, etc.). Fixtures with multiple taps include an additional locator (e.g., TAP 1, TAP 2). The first draw sample is then identified with the “A” suffix and the flush sample identified with a “B” suffix.

Created by: LCA 3/30/17
Checked by: AES 3/30/17
Updated by: LCA 4/3/17
Checked by: AES 4/3/17