

**COMMITMENT & INTEGRITY
DRIVE RESULTS**

40 Shattuck Road | Suite 110
Andover, Massachusetts 01810
www.woodardcurran.com

T 866.702.6371
T 978.557.8150
F 978.557.7948



June 2, 2014

Ms. Kimberly Tisa
PCB Coordinator
U.S. Environmental Protection Agency Region 1
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Re: PCB Interim Measures Completion Report and MMIP
Lederle Graduate Research Center
University of Massachusetts – Amherst

Dear Ms. Tisa:

On behalf of the University of Massachusetts (UMass), please find attached the Polychlorinated Biphenyl (PCB) Interim Measures Completion Report prepared in accordance with the requirements set forth in the Consent Agreement and Final Order (CAFO) dated June 21, 2012 between UMass and the U.S. Environmental Protection Agency (EPA) with regard to in-place management of PCB containing glazing sealants on windows within the Lederle Graduate Research Center Tower A and low-rise buildings located at 701 – 740 North Pleasant Street on the UMass campus in Amherst, Massachusetts.

In addition, we have also enclosed the Revised Monitoring and Maintenance Implementation Plan (MMIP) to update the existing MMIP incorporated into the CAFO. This revised MMIP has been prepared to reflect current conditions at the LGRC Tower A and low-rise buildings based on the change in conditions since the preparation and submittal of the CAFO, specifically the decision to remove windows from the low-rise building.

If you have any comments, questions, or require further information, please do not hesitate to contact me at the number listed above.

Sincerely,

WOODARD & CURRAN INC.

Jeffrey Hamel, LSP, LEP
Senior Vice President

cc: T. Wolejko, University of Massachusetts
P. Gray-Mullen, University of Massachusetts



PCB Interim Measures Completion Report

Lederle Graduate
Research Center

University of
Massachusetts

Amherst,
Massachusetts

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

40 Shattuck Road Suite 110
Andover, Massachusetts, 01810

Project No. 210918

**University of
Massachusetts**

June 2014

TABLE OF CONTENTS

SECTION	PAGE NO.
1. INTRODUCTION	1-1
1.1 Site Background / Conceptual Site Model	1-1
1.2 Project Timeline.....	1-1
1.3 Project Team	1-3
2. IMPLEMENTATION	2-1
2.1 Remediation Overview	2-1
2.2 Site Preparation and Controls	2-1
2.3 Cleaning of the Areas.....	2-2
2.3.1 Post-Cleaning Inspection and Verification.....	2-2
2.4 Application of Secondary and Primary Barriers	2-3
2.5 Encapsulation Baseline Monitoring	2-3
2.6 Data Usability Assessment.....	2-4
3. WASTE STORAGE, DISPOSAL, AND EQUIPMENT DECONTAMINATION.....	3-1
4. DEED RESTRICTION	4-1
5. REVISED LONG TERM MONITORING PLAN	5-1
6. SUMMARY AND CONCLUSIONS	6-1

LIST OF TABLES

TABLE

Table 2-1:	Summary of Post-Cleaning Verification Wipe Sample Results
Table 2-2:	Summary of Post-Encapsulation Baseline Wipe Sample Results

LIST OF FIGURES

FIGURE

Figure 1-1:	Site Location Map
Figure 2-1:	Verification Wipe Sample Locations – Tower A 1 st – 4 th Floors
Figure 2-2:	Verification Wipe Sample Locations – Tower A 5 th – 8 th Floors
Figure 2-3:	Verification Wipe Sample Locations – Tower A 9 th – 12 th Floors
Figure 2-4:	Verification Wipe Sample Locations – Tower A 13 th – 16 th Floors
Figure 2-5:	Verification Wipe Sample Locations – Low-Rise Computer Room

APPENDICES

Appendix A:	PCB Remediation Completion Report – NIH Renovation Project
Appendix B:	Analytical Laboratory Reports and Data Validation Summaries
Appendix C:	Waste Disposal Documents
Appendix D:	Deed Restriction

1. INTRODUCTION

This Polychlorinated Biphenyl (PCB) Interim Measures Completion Report has been prepared by Woodard & Curran on behalf of the University of Massachusetts (UMass) to comply with the requirements set forth in the Consent Agreement and Final Order (CAFO) dated June 21, 2012 between UMass and the U.S. Environmental Protection Agency (EPA). In accordance with Section 4.5 of the Interim Measures Plan, this completion report documents the completion of interim measures associated with the in-place management of PCB containing glazing sealants on windows within the Lederle Graduate Research Center Tower A and low-rise building on the UMass campus in Amherst, Massachusetts.

1.1 SITE BACKGROUND / CONCEPTUAL SITE MODEL

The LGRC complex was constructed in the early 1970's as a facility for classroom, library, laboratory, and office space. The complex consists of a three-story low-rise building ("the low-rise") and an attached 17-story tower identified as Tower A ("the high-rise"). The Site is located toward the northern end of the UMass campus at the intersection of North Pleasant Street and Governors Drive. The location of the LGRC complex on the Amherst campus is shown on Figure 1-1.

A limited hazardous building materials investigative survey and assessment was conducted to identify asbestos-containing materials, lead in paint, PCBs, and other hazardous building materials in anticipation of renovations planned at the LGRC low rise building. During the assessment, a sample of interior window glazing sealant was collected and analyzed for PCBs. This sample and a duplicate of this sample detected total PCBs at concentrations of 12,000 ppm and 11,000 ppm, respectively.

Given that these concentrations exceeded the regulatory threshold per Federal regulation (40 CFR 761) for PCBs in a non-totally enclosed manner, an approach was developed for the encapsulation of the glazing sealants as an interim measure until the glazing sealant could be removed during window replacement projects. The approach was presented to EPA in the May 2012 Interim Measures Plan and finalized as part of the Consent Agreement and Final Order (CAFO) between EPA and UMass dated June 21, 2012.

1.2 PROJECT TIMELINE

Upon gaining knowledge of the PCB concentrations in the window glazing sealant (March 2009), the following activities were initiated/conducted in support of developing an approach to address this issue:

- April 2009 - Inspection and inventory of all accessible windows in the LGRC low-rise and Tower A high rise buildings;
- May 2009 - Collection of window glazing sealant samples to confirm initial results from locations throughout the buildings, surface wipes from interior locations, and indoor air samples from representative locations throughout the buildings; and
- May 2009 - Public notifications and outreach through informational postings and a meeting with building occupants and stakeholders.

Following discussions with EPA, a draft Interim Measures Plan was submitted on July 31, 2009, which included an approach, based on pilot testing of several products, to implement an interim measure to reduce exposure potential to the window glazing sealant until a long-term solution can be implemented. This interim measure was a combination of decontamination procedures followed by an encapsulation of the glazing sealant.

Following submittal of this draft plan, the following activities were continued or conducted in support of EPA's review and approval:

- November 2009 – UMass personnel met with EPA personnel to review the plan and potential next steps in EPA's approval process. During this meeting, the topic of a Consent Agreement was discussed as a potential mechanism to manage the window glazing sealant and implement the Interim Measures plan.
- March 2010 – EPA provided a draft Consent Agreement to UMass for review. This was followed by subsequent comments and discussions to the Agreement language.
- February 2010 – February 2013 – Additional monitoring of the pilot test areas (wipe and bulk sample collection and analyses) as well as implementation of an expanded pilot test of different products was conducted.
- November 2010 – Project status and informational meeting with building occupants and stakeholders.
- June 2012 – Finalization of the CAFO

Activities conducted in accordance with the CAFO are summarized below:

Tower A High-Rise

- Activities completed as part of the National Institute of Health (NIH) Grant Lab Renovation project, including:
 - February 2012 - Removal and replacement of 42 laboratory windows throughout the 3rd, 7th and 8th floors; and
 - July - August 2012 - Implementation of the Interim Measure associated with the elevator lobby windows located on the 1st, 3rd, 7th and 8th floors.
 - January 8, 2013 – Submittal of PCB Remediation Completion Report for the NIH renovation project. A copy of this report has been included as Appendix A.
- July - August 2013 - remainder of Interim Measure completed for all subject windows (cleaning, encapsulation, and verification sampling of sills), as well as an additional sealant encountered in the stairwells (refer to the August 23, 2013 new condition notification submittal).

Low-Rise

- September 17, 2013 – Notice and phasing plan submitted to EPA indicating UMass' intention to remove/replace the windows throughout the low-rise in place of the Interim Measure (with the exception of one set of windows in the first floor computer room, which cannot be replaced). The schedule for the replacement included starting the replacements in October 2013 and finishing in early 2015 (given re-location and logistics).
- November 14, 2013 – Responses to EPA's November 1st comments on the notification were submitted and responses to EPA's November 23rd follow-up comments were submitted on November 25th;
- November 26, 2013 – EPA correspondence indicated that EPA has no further comments and UMass may proceed as authorized under the CAFO, including the revised completion date for replacement of the low-rise windows; and
- December 2013 - Interim Measure completed at first floor windows of computer room.

Baseline Wipe Sampling

- Baseline wipe samples were collected from encapsulated surfaces within Tower A and the low-rise computer room on February 24, 2014 and March 7, 2014.

A summary of the status of the interim measures in each of the major portions of the LGRC (as described in the Interim Measures Plan) following the completion of the activities described above (including the on-going

removals/replacements being conducted at the low-rise building and scheduled to be completed by early 2015) is as follows:

Library Windows: Interim measures not to be conducted; all windows to be removed as part of the large-scale window replacement project scheduled for completion in Q1 of 2015.

Low-Rise North Wing Windows: All windows to be removed as part of the large-scale window replacement project scheduled for completion in Q1 of 2015 except for the computer room windows to be included in the interim.

Tower A High Rise Windows: Laboratory windows on the 3rd, 7th and 8th floors replaced as part of the NIH renovation project in 2012. Interim measures completed on all other windows.

Walkway Windows: Interim measures not to be conducted; all windows to be removed as part of the large-scale window replacement project scheduled for completion in Q1 of 2015.

Based on the completion of all interim measures within Tower A and the low-rise computer room, this Interim Measures Completion Report is being submitted to meet the reporting requirements of the CAFO. In addition, based on the change in conditions since the preparation and submittal of the Interim Measures Plan, a revised long term monitoring and maintenance plan has been included with this submittal.

Following completion of the window removals, a completion report for those activities will be submitted along with a revised Long Term Monitoring and Maintenance Implementation Plan (MMIP) for the LGRC complex. The revision to the MMIP will incorporate monitoring and maintenance associated with residual PCBs to be managed in-place on exterior concrete surrounding the 50 Type L windows within the library, the low-rise north wing, and the walkway as described in the September 17, 2013 Notification Letter.

1.3 PROJECT TEAM

The remediation project team consisted of the following parties:

- University of Massachusetts Amherst – Owner
- Goldman Reindorf Architects Inc. (GRA) – Project Designer and Architect
- Woodard & Curran – PCB Remediation Consultant
- Con-Test Analytical Laboratory – Laboratory for PCB sample analysis

For each of the three projects, the project team also included the following:

NIH Renovation

- D.A. Sullivan & Sons (DAS) – General Contractor
- RM Technologies, Inc. (RMT) – PCB Remediation Subcontractor and Caulking Installation

Tower A High Rise

- Chapman Waterproofing Company (Chapman), – General Contractor and Caulking Installation
- Compass Restoration Services, LLC. (Compass) – PCB Remediation Subcontractor

Low-Rise Room A106

- Souliere and Zepka (S&Z), – General Contractor
- Safe Environment of America (SEA) – PCB Remediation Subcontractor
- Chapman Waterproofing Company (Chapman) – Caulking Installation

2. IMPLEMENTATION

This section describes the implementation of the interim measures at the Tower A and low-rise building computer room conducted in accordance with the CAFO and the Interim Measures Plan.

In addition, as described in the Notification of Additional PCB Remediation Activities submitted by UMass on August 23, 2013, a limited volume of interior caulking was identified on metal to metal window joints within the stairwell of Tower A. As described in that notification, these materials were assumed to contain ≥ 50 ppm PCBs and were incorporated into the interim measures plan with a modification to include the use of DOW Corning 1-2-3 silicone seal preformed gasket in place of the silicone caulking.

2.1 REMEDIATION OVERVIEW

Glazing sealants on the windows at the LGRC Tower A and low-rise building computer room and metal to metal caulking on window frames within the Tower A stairwell were identified as containing ≥ 50 ppm PCBs. UMass has completed interim measures for these locations as part of three renovation projects as described above.

The remedial approach consisted of the following:

- General cleaning of the window units and surrounding surfaces via removal of dust and debris using a vacuum equipped with HEPA filtration followed by cleaning of surfaces with a standard industrial/commercial cleaner (Klean-Strip TSP Plus).
- Containment of the glazing sealant through the installation of barrier/encapsulating materials (aluminum foil tape followed by silicone sealant) to reduce potential direct contact exposures.
- Containment of the metal to metal window frame caulking in the Tower A stairwell through the installation of barrier/encapsulating materials (aluminum foil tape followed by DOW 1-2-3 silicone seal preformed gasket).

The effectiveness of each step of the interim measures was evaluated through visual inspection and verification sampling. A detailed summary of the interim measures activities, including site preparations and controls, cleaning and encapsulation, inspections and verification sampling, and off-site disposal of materials is presented in the following sections.

2.2 SITE PREPARATION AND CONTROLS

The project team coordinated with the University to relocate all occupants to alternative areas during the active stages of work, to the greatest extent possible. Floors included in the NIH renovation project were unoccupied during implementation. During the 2013 Tower A high rise and low-rise computer room encapsulation projects, occupants were advised of the abatement project timeline and temporarily relocated during the cleaning and application of the secondary barrier (aluminum tape). Pending application of the final encapsulating barrier (caulking), occupants were allowed to reenter the space; however, the area immediately in front of the windows was kept open to allow access for caulking installation.

Prior to implementation of the interim measures, the following site controls were established:

- All movable objects were removed from the work area by occupants;
- All non-movable objects were covered with 6-mil fire retardant polyethylene sheeting;
- Polyethylene containments were erected at the window openings; and



Typical Polyethylene Controls

- Access to the work areas was limited to authorized personnel through the posting of signs on the doors to the spaces and at the perimeter of the work areas.

2.3 CLEANING OF THE AREAS

Any loose glazing sealant was removed from the glass to metal frame joints located at the perimeter of each window using a HEPA vacuum. Following removal, the vacuumed surfaces and window frames and components (including glass) were cleaned using Klean-Strip TSP Substitute cleaner. Once the window cleaning step was completed, the grate panels from the metal heating ducts located at the base of each window were removed and any debris and particulates were removed with a HEPA vacuum. As a final step, the horizontal surfaces surrounding each window (tops of heating ducts and window ledges) were cleaned using a Klean-Strip TSP Substitute cleaner.

At the conclusion of each work day or following completion of work within an area, the work area, tools, and equipment were decontaminated by wet wiping and vacuuming. All removed materials, disposable cleaning materials, PPE, vacuum filter bags, and trash generated during the decontamination activities were placed in lined and labeled storage containers in the designated hazardous waste storage areas for disposal as PCB Bulk Product Waste and Asbestos Containing Material (ACM).



Typical Heating Duct at Base of Windows

2.3.1 Post-Cleaning Inspection and Verification

Following completion of the cleaning, visual inspections were conducted to confirm the areas were clear of dirt and debris and verification wipe samples were collected from the decontaminated window sills by Woodard & Curran personnel. Verification wipe samples were collected from the metal horizontal sills for a sample frequency of one wipe per floor at Tower A and one wipe from the low-rise computer room. Results from the 17 samples indicated that PCBs were non-detect or less than the 10 $\mu\text{g}/100\text{ cm}^2$ cleanup level in all samples (average concentrations of 0.49 $\mu\text{g}/100\text{ cm}^2$).

Window sill decontamination wipe samples were collected using hexane-saturated gauze wipes in accordance with the standard wipe test method under 40 CFR 761.123. Wipe samples were submitted to Con-Test Analytical Laboratories under the standard chain of custody procedures. Samples were extracted via method 3540C (Soxhlet extraction) and analyzed via EPA method 8082.

Based on the results of the visual inspection and verification wipe sampling, no additional decontamination of the horizontal sills or heating ducts within the project work areas was warranted (or conducted).

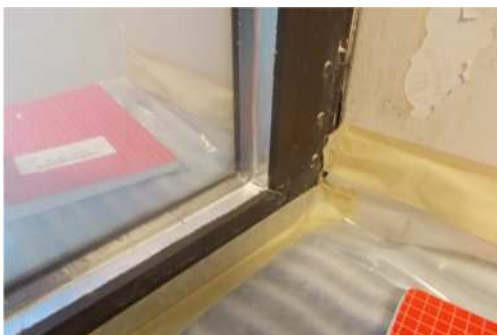
A summary of the sill decontamination verification wipe sample results is presented on Table 2-1. The complete analytical laboratory reports are provided in Attachment 1. The sample locations are shown on Figures 2-1 through 2-5.

It should be noted that as part of the window removal project being conducted in the low rise building, decontamination/ cleaning activities of the sills and heating ducts are also being conducted. All results collected to date have been below the cleanup level of 10 $\mu\text{g}/100\text{ cm}^2$. All results will be reported upon completion of the window removal project.

2.4 APPLICATION OF SECONDARY AND PRIMARY BARRIERS

Following completion of the cleaning, a layer of aluminum foil tape was applied over the glazing sealants. Based on lessons learned during the NIH renovation project, for the 2013 encapsulation activities, the application was modified to include the installation of a wider strip of aluminum tape to cover more of the glass and metal frame adjacent to the glazing sealants. In addition, aluminum corner pieces were pre-fabricated and installed at the corners of the window frames to create better transition points for the barrier at the window corners.

Following visual inspection to confirm that all glazing sealants were covered by the foil tape, a bead of



Typical Window Following Aluminum Foil Tape Application



Typical Window Following Caulking Application

black Dow 795 silicone caulking was

installed over the foil tape to complete the two-barrier encapsulation of the glazing sealant.

Upon completion of caulking installation, visual inspection was conducted to confirm that no aluminum foil tape was visible.

2.5 ENCAPSULATION BASELINE MONITORING

Following completion of the application of the aluminum tape and caulking, baseline wipe samples were collected from the caulking and exposed window frame in accordance with the Interim Measures Plan at a frequency of one sample per floor for the Tower A locations and one sample was collected from the low rise computer room.

A summary of the analytical results from the hexane wipe samples is as follows:

- Total PCBs were reported as either non-detect (ten samples at $< 0.20 \mu\text{g}/100 \text{ cm}^2$) or $< 1 \mu\text{g}/100 \text{ cm}^2$ (five samples with reported concentrations ranging from 0.21 to $0.95 \mu\text{g}/100 \text{ cm}^2$) in 15 of the 17 samples collected; and
- Total PCBs were reported at concentrations $> 1 \mu\text{g}/100 \text{ cm}^2$ in two samples with reported concentrations of 1.5 and $3.1 \mu\text{g}/100 \text{ cm}^2$ (both samples were collected from areas encapsulated during the NIH renovation prior to the application modifications described above).

A summary of the analytical results is presented on Table 2-2. The locations of the wipes are depicted on Figures 2-1 through 2-5. The complete laboratory reports are provided in Attachment 1.

It should be noted that, for those locations included in the NIH renovation project, one post encapsulation wipe sample was collected from the eighth floor following completion of the work; however, the NIH locations were included in the 2014 sampling to establish the baseline monitoring data for all locations in a single event. PCBs were reported in both samples at a concentration of $1.5 \mu\text{g}/100 \text{ cm}^2$ indicating no change in PCB concentrations at the surface of the barrier overtime.

In addition to the hexane wipe samples, saline wipe samples were also collected from each floor at the same frequencies. As indicated on Table 2-2, all saline wipe samples were non-detect ($< 0.20 \mu\text{g}/100 \text{ cm}^2$) with the exception of one sample with a reported concentration of $0.47 \mu\text{g}/100 \text{ cm}^2$. The rationale for the saline wipe samples

and their use during the long term monitoring program is included in the Revised Monitoring and Maintenance Implementation Plan as described in Section 5.

2.6 DATA USABILITY ASSESSMENT

This data quality and data usability assessment has been conducted to review the samples collected in support of the remediation and verification activities. Data validation and review was conducted by a third-party validator, Data Check, Inc. of New Durham, New Hampshire. This review included a check of field documentation including: sample collection and preservation methods; a check of the laboratory data and documentation; a review of the internal laboratory QA/QC procedures and results including surrogate recoveries, blank results, matrix spike (MS) and matrix spike duplicate (MSD) results, laboratory control standard (LCS) and laboratory control standard duplicate (LCSD) results; and an evaluation of sample holding times and field duplicate results. Data Check's data validation summaries are provided in Appendix B.

A summary of the data usability assessment for the data is presented below:

- The data packages were reviewed to ensure that all sample and associated quality assurance results were available. Results of the completeness review indicated that all collected samples were analyzed and all quality control results were available to complete the data validation process.
- All samples were extracted by USEPA Method 3540C (Soxhlet Extraction) and analyzed for PCBs by USEPA Method 8082.
- Consistent procedures and laboratory analysis of the data were achieved. Sample containers were packed on ice and delivered to the laboratory under standard chain of custody procedures. Although some samples were not received within the allowable temperature range, all samples were extracted and analyzed within allowable holding times for the method. No qualifications were applied.
- One sample was analyzed at a dilution due to the concentration of Aroclor 1254 present. Elevated quantitation limits are reported in this sample as a result of the dilution.
- One field duplicate sample was collected to evaluate the precision of the verification sample results. Relative percent difference (RPD) between the primary and associated duplicate samples met the acceptance criteria with the exception of Aroclor 1254 which was not detected in the primary sample but was detected in the field duplicate at greater than 2 X the reporting limit. Aroclor 1254 results were estimated (J, UJ) in the sample.
- The RPD between sample column results for individual samples was evaluated to assess the precision of the results. The RPD met acceptance criteria ($\leq 25\%$) with the exception of four samples. Analytical results from these samples were qualified as estimated based on this evaluation.
- The PCB LCS/LCSD was evaluated to assess the precision of the results. The RPD met acceptance criteria ($<25\%$) for all samples. No qualifications were applied.
- No MS/MSD was performed on the analytical packages since these were wipe samples. No qualifications were applied.
- All surrogates met the acceptance criteria with the exception of three samples in package 14B0704. Results from these three samples (LGRC-EN-VWK-101, -103, and -105) were qualified as estimated (UJ) or rejected (R). Analytical results from the three samples were not used and follow-up samples were collected.
- The PCB method blanks were non-detect for PCBs. No qualifications were applied.

Based on this review, the data adequately represents the materials tested, and is considered usable for its intended purpose.

3. WASTE STORAGE, DISPOSAL, AND EQUIPMENT DECONTAMINATION

At the conclusion of each project, all waste materials were transferred off-site for disposal as PCB Bulk Product Waste and ACM. Following use, non-disposable equipment and tools were decontaminated using a double wipe with diesel or hexane soaked rags following gross removal of any dust or debris. Disposable tools and equipment, PPE, and decontamination materials were managed for off-site disposal with the PCB Bulk Product Waste.

Wastes generated during the projects were collected in secured, lined and covered waste containers in accordance with 40 CFR 761.65. These containers were properly labeled and marked in accordance with 40 CFR 761.40. A summary of the waste generated during each phase of the project is as follows:

- NIH Renovations – 15 tons of wastes (total includes the frames of windows removed as part of the renovations) were shipped off-site in one 30-yard roll-off container and one 55-gallon drum for disposal to the Minerva Enterprises Landfill in Waynesburg, Ohio.
- Tower A – A total of 1.2 tons of waste were shipped off-site in four cubic yard boxes for disposal to Environmental Quality's Wayne Disposal Facility in Belleville, Michigan.
- Low-Rise – Materials were placed into roll-off containers for disposal to Environmental Quality's Wayne Disposal Facility in Belleville, Michigan with the PCB waste generated as part of the window replacement project. As of the date of this report, waste materials have not yet been taken off-site for disposal.

Copies of all PCB waste shipment records including manifests and certificates of disposal for the NIH and Tower A projects are provided in Appendix C. Waste documents for the disposal of materials from the low-rise computer room have not been included because the waste is still on-site pending shipment as part of the overall low-rise window replacement project.

4. DEED RESTRICTION

Pursuant to Section 4.6 of the Interim Measures Plan, a deed notice was recorded on May 14, 2014 for the subject site. The restriction includes a description of the extent and levels of PCBs remaining on the building following remediation, a description of the remedial actions taken, a description of the use restrictions, and the long-term monitoring and maintenance requirements. A copy of the Deed Restriction is provided as Appendix D.

5. REVISED LONG TERM MONITORING PLAN

In accordance with Section 5 of the Interim Measure Plan, long term monitoring and maintenance of the interim measures will be conducted including: visual inspections, surface wipe samples of non-porous surfaces, surface wipe samples of encapsulated surfaces, and indoor air samples.

Given that the conditions have changed since preparation and submittal of the Monitoring and Maintenance Implementation Plan (MMIP) in the CAFO, specifically, the decision to remove windows from the Low Rise building, a revised MMIP has been prepared to reflect current conditions and is provided under a separate cover.

In general, the components of the revised MMIP are consistent with the MMIP included in the Interim Measures Plan; however, due to the removal of the majority of windows from the low-rise building, some aspects of the MMIP have been modified (e.g., total number of samples have been reduced due to the removal of windows). In addition to the collection of hexane wipes from encapsulated surfaces as described in the Interim Measures Plan, saline wipe samples will also be initially collected as part of long term monitoring to support the monitoring data.

6. SUMMARY AND CONCLUSIONS

The interim measures to address the temporary in-place management of ≥ 50 ppm PCB-containing window glazing sealants at the LGRC Tower A and low-rise building have been completed in accordance with the Interim Measures Plan and CAFO between UMass and EPA.

Activities were conducted as part of three separate events as follows:

Tower A High-Rise

- July - August 2012; Activities completed as part of the National Institute of Health (NIH) Grant Lab Renovation project, including the implementation of the Interim Measure associated with the elevator lobby windows located on the 1st, 3rd, 7th and 8th floors (as part of this project 42 laboratory windows on the 3rd, 7th, and 8th floors were removed as reported in the PCB Remediation Activities Completion Report dated December 17, 2012).
- July - August 2013; Interim Measure completed for all remaining Tower A subject windows (cleaning, encapsulation, and verification sampling of sills), as well as an additional sealant encountered in the stairwells.

Low-Rise

- December 2013 - Interim Measure completed at first floor windows of the computer room (all other windows within the low-rise building, including the library areas, are being removed as part of the window replacement project scheduled to be completed in Q1 2015).

A total of 16.2 tons of bulk PCB waste (caulking, window/door frames and components, poly sheeting, etc.) contained in one roll-off container, one 55-gallon drum, and four cubic yard boxes were removed for off-site disposal as PCB Bulk Product Waste to either the Minerva Enterprises Landfill in Waynesburg, Ohio or Environmental Quality's Wayne Disposal Landfill in Belleville, Michigan.

Following cleaning of the windows and surrounding surfaces, verification baseline samples were collected from the encapsulated surfaces. Analytical results indicated that PCBs were either non-detect (five samples with a reporting limit of $< 0.20 \mu\text{g}/100\text{cm}^2$) or present in eleven samples at concentrations ranging from 0.21 to $2.0 \mu\text{g}/100\text{cm}^2$ (average of $0.49 \mu\text{g}/100\text{cm}^2$).

Post-encapsulation baseline verification wipe samples (hexane) were collected from the encapsulated surfaces and indicated that PCBs were either non-detect (ten samples at $< 0.20 \mu\text{g}/100 \text{ cm}^2$) or $< 1 \mu\text{g}/100\text{cm}^2$ (five samples with reported concentrations ranging from 0.21 to $0.95 \mu\text{g}/100 \text{ cm}^2$) in 15 of the 17 samples collected. PCBs were reported at concentrations $> 1 \mu\text{g}/100 \text{ cm}^2$ in two samples with reported concentrations of 1.5 and $3.1 \mu\text{g}/100 \text{ cm}^2$.

With the exception of the implementation of long term monitoring and maintenance activities (to start in 2015), the Interim Measures associated with the CAFO have been completed. For those windows scheduled to be removed, notification of completion of the replacement will be provided under separate cover following completion of the low-rise window replacement project.

Table 2-1
Summary of Post-Cleaning Verification Wipe Sample Results
LGRC Interim Measures
UMass Amherst

Floor	Wipe Location	Representative Areas	Sample ID	Date Collected	Total PCBs ($\mu\text{g}/100\text{ cm}^2$)
Tower A High Rise					
1	Elevator Lobby North Window	1st Floor	LGRT-VW-D	7/6/2012	0.72
2	Elevator Lobby West Side Window (Room 210)	2nd Floor	LGRT-EN-WM-067	8/22/2013	0.94
3	Elevator Lobby North Window	3rd Floor	LGRT-VW-C	7/6/2012	0.21
4	Lab 408 Middle Window	4th Floor	LGRT-EN-WM-059	8/7/2013	< 0.20
5	Lab 502	5th floor	LGRT-EN-WM-066	8/22/2013	< 0.20
6	Lab 605 Middle Window	6th floor	LGRT-EN-WM-060	8/7/2013	0.41
7	Elevator Lobby South Window	7th Floor	LGRT-VW-B	7/6/2012	0.57
8	Elevator Lobby South Window	8th Floor	LGRT-VW-A	7/6/2012	1.15
9	Lab Room 903A	9th floor	LGRT-EN-WM-064	8/15/2013	0.36
10	Lab 1003 Southern Window	10th floor	LGRT-EN-WM-065	8/19/2013	< 0.20
11	Lab 1106 Southern Window	11th floor	LGRT-EN-WM-063	8/15/2013	0.26
12	Lab 1209 Southern Window	12th floor	LGRT-EN-WM-061	8/15/2013	< 0.20 UJ
13	Lab 1306 Northern Window	13th floor	LGRT-EN-WM-058	8/7/2013	0.95
14	Elevator Lobby Southern Window	14th floor	LGRT-EN-WM-057	8/7/2013	2.0
15	Lab 1508 Southern Window	15th Floor	LGRT-EN-VM-056	7/30/2013	< 0.20
16	Lab 1607 Middle Window	16th Floor	LGRT-EN-VM-055	7/30/2013	0.31 J
Low Rise					
1	Computer Room A106	Computer Lab	LGRC-VWS-078	11/27/2013	< 0.20

Notes

- 1) Samples were analyzed for PCBs by EPA 8082 with 3540C Soxhlet extraction.
- 2) PCBS reported as 1254 and/or 1260. No other Aroclors reported above the minimum laboratory reporting limit.
- 3) Wipe samples collected in accordance with 40 CFR 761.123.
- 4) J/UJ denotes samples are qualified as estimated based on external data validation. Additional details provided in Appendix A. Samples qualified as estimated based on external data validation. Additional details provided in Appendix D.

Table 2-2
Summary of Post-Encapsulation Baseline Wipe Sample Results
LGRC Interim Measures
UMass Amherst

Floor	Window Type	Room Number	Baseline Wipes					
			Hexane Wipes			Saline Wipes		
			Sample ID	Sample Date	Total PCBs (µg/100cm ²)	Sample ID	Sample Date	Total PCBs (µg/100cm ²)
1	Elevator Lobby	199Y	LGRC-EN-VWK-124	2/24/2014	< 0.20	LGRC-EN-VWK-125	2/24/2014	< 0.20
2	Elevator Lobby	299T	LGRC-EN-VWK-128	2/24/2014	< 0.20	LGRC-EN-VWK-129	2/24/2014	< 0.20
3	Elevator Lobby	399A	LGRC-EN-VWK-130	2/24/2014	3.1	LGRC-EN-VWK-131	2/24/2014	< 0.20
4	Laboratory	408	LGRC-EN-VWK-100	2/24/2014	< 0.20	LGRC-EN-VWK-133	3/7/2014	< 0.20
5	Laboratory	502	LGRC-EN-VWK-102	2/24/2014	< 0.20	LGRC-EN-VWK-135	3/7/2014	< 0.20
6	Laboratory	605	LGRC-EN-VWK-104	2/24/2014	0.27	LGRC-EN-VWK-134	3/7/2014	< 0.20 J
7	Elevator Lobby	799A	LGRC-EN-VWK-126	2/24/2014	0.64	LGRC-EN-VWK-127	2/24/2014	< 0.20
8	Elevator Lobby	899A	LGRC-EN-VWK-122	2/24/2014	1.5	LGRC-EN-VWK-123	2/24/2014	< 0.20
9	Laboratory	903A	LGRC-EN-VWK-120	2/24/2014	< 0.20	LGRC-EN-VWK-121	2/24/2014	< 0.20
10	Laboratory	1003	LGRC-EN-VWK-118	2/24/2014	0.21	LGRC-EN-VWK-119	2/24/2014	< 0.20 J
11	Laboratory	1108	LGRC-EN-VWK-116	2/24/2014	< 0.20	LGRC-EN-VWK-117	2/24/2014	< 0.20
12	Laboratory	1209	LGRC-EN-VWK-114	2/24/2014	< 0.20	LGRC-EN-VWK-115	2/24/2014	< 0.20
13	Laboratory	1306	LGRC-EN-VWK-112	2/24/2014	< 0.20	LGRC-EN-VWK-113	2/24/2014	< 0.20
14	Elevator Lobby	1499A	LGRC-EN-VWK-110	2/24/2014	0.21	LGRC-EN-VWK-111	2/24/2014	< 0.20 J
15	Laboratory	1508	LGRC-EN-VWK-108	2/24/2014	< 0.20	LGRC-EN-VWK-109	2/24/2014	0.47
16	Laboratory	1607	LGRC-EN-VWK-106	2/24/2014	0.95	LGRC-EN-VWK-107	2/24/2014	< .20
Low Rise	Computer Room	A106	LGRC-EN-VWK-132	2/24/2014	< 0.20	LGRC-EN-VWK-133	2/24/2014	< 0.20

Notes:

Total PCBs reported as Aroclor 1254. No other Aroclor reported at concentrations above the minimum laboratory reporting limits.

Wipe samples collected over 22 inch long section of caulking and window frame based on width of approximately 3/4" to achieve a 100cm² sample area.

J = Analytical results estimated based on data validation. Additional information provided in Appendix A.

The distribution of wipe samples between laboratory and elevator lobby areas was modified from that included in the IMP based on the removal of all laboratory windows



University of Massachusetts Amherst Campus Map

July 2011

University Switchboard - (413) 545-0111

Tour Service - (413) 545-4237

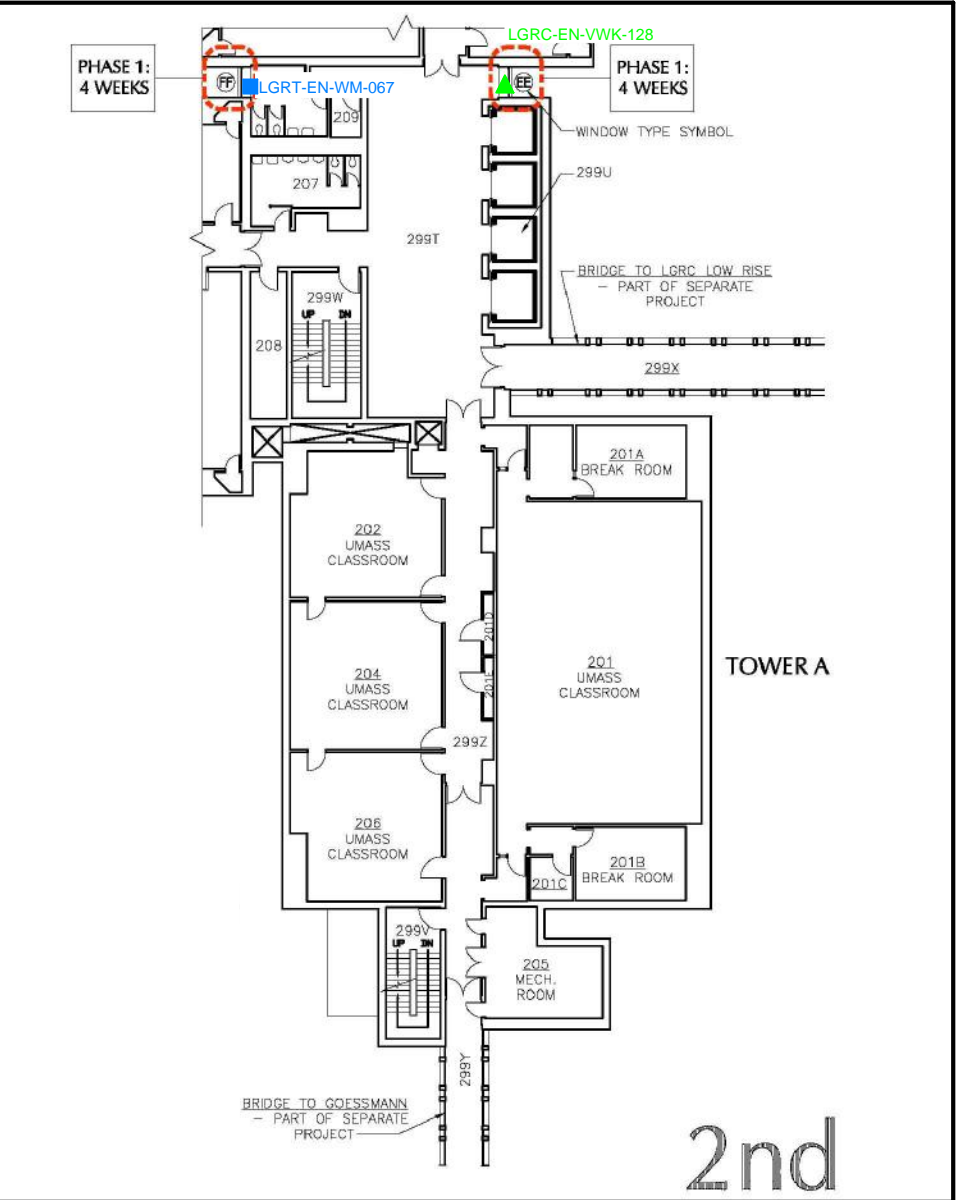
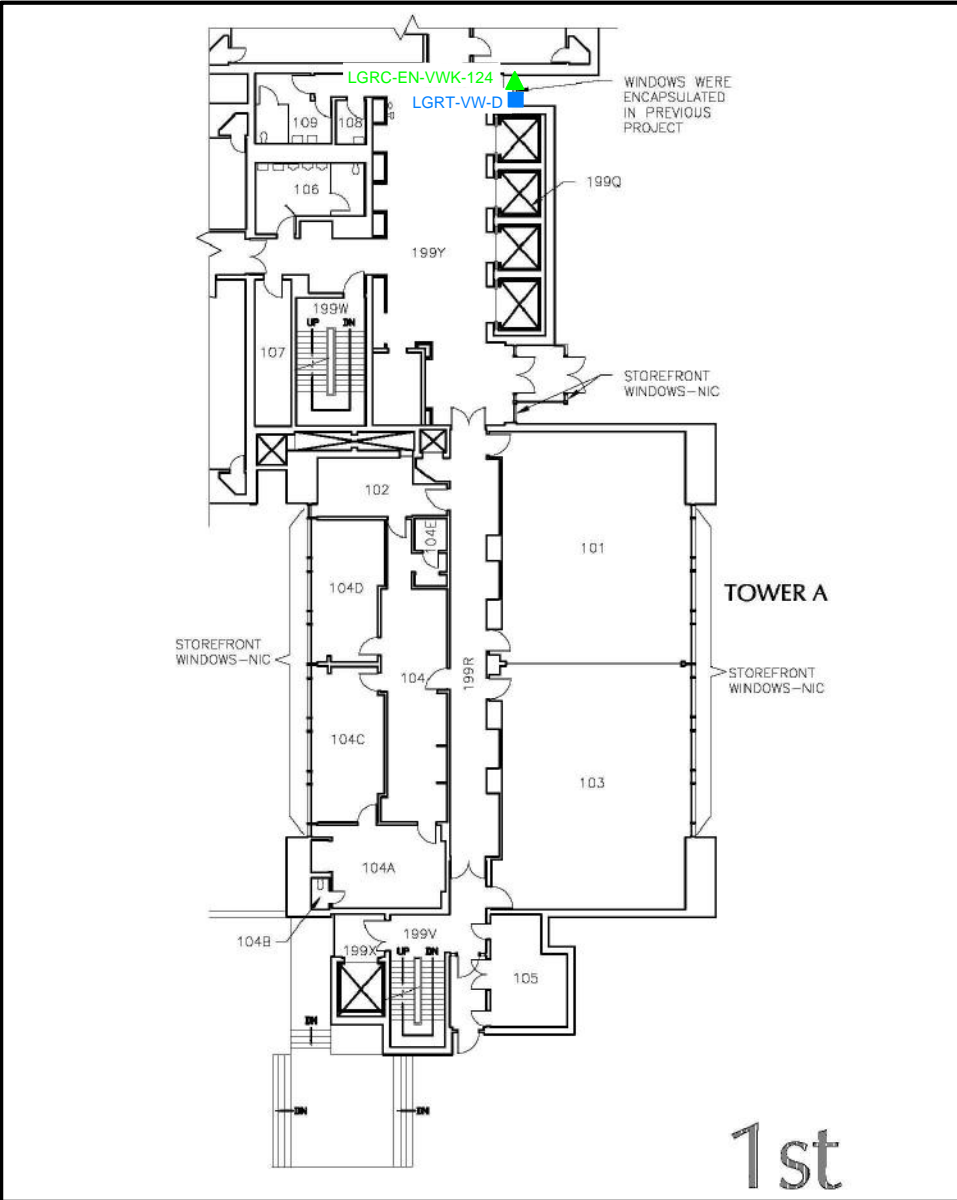
Robsham Memorial Visitors Center - (413) 545-0306

Map Key

- 31 Numbered Parking Lots
- P Metered/Public Parking
- ▲ PVTA Bus Stops
- ✕ Traffic Lights

Project Location

Figure 1-1 Site Location Map



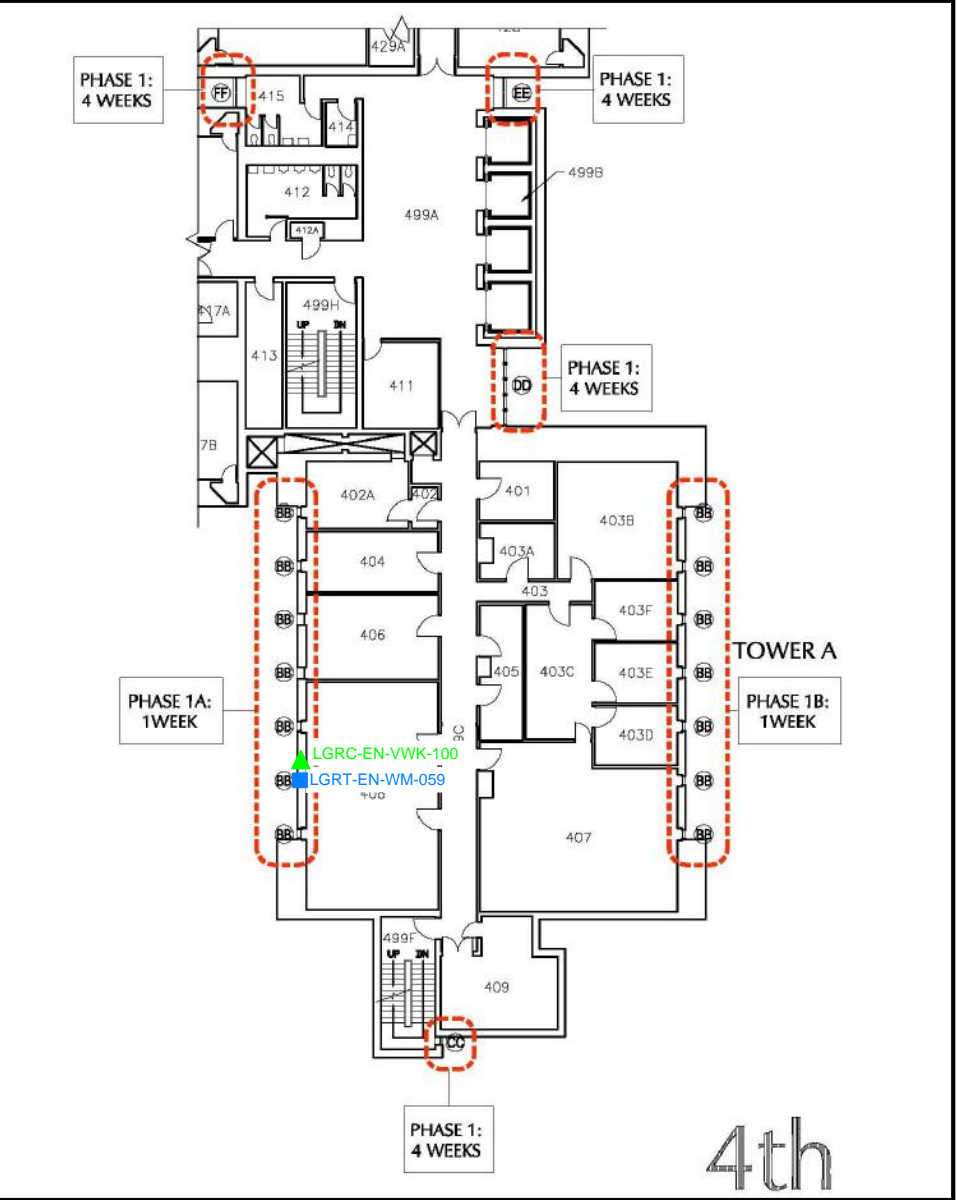
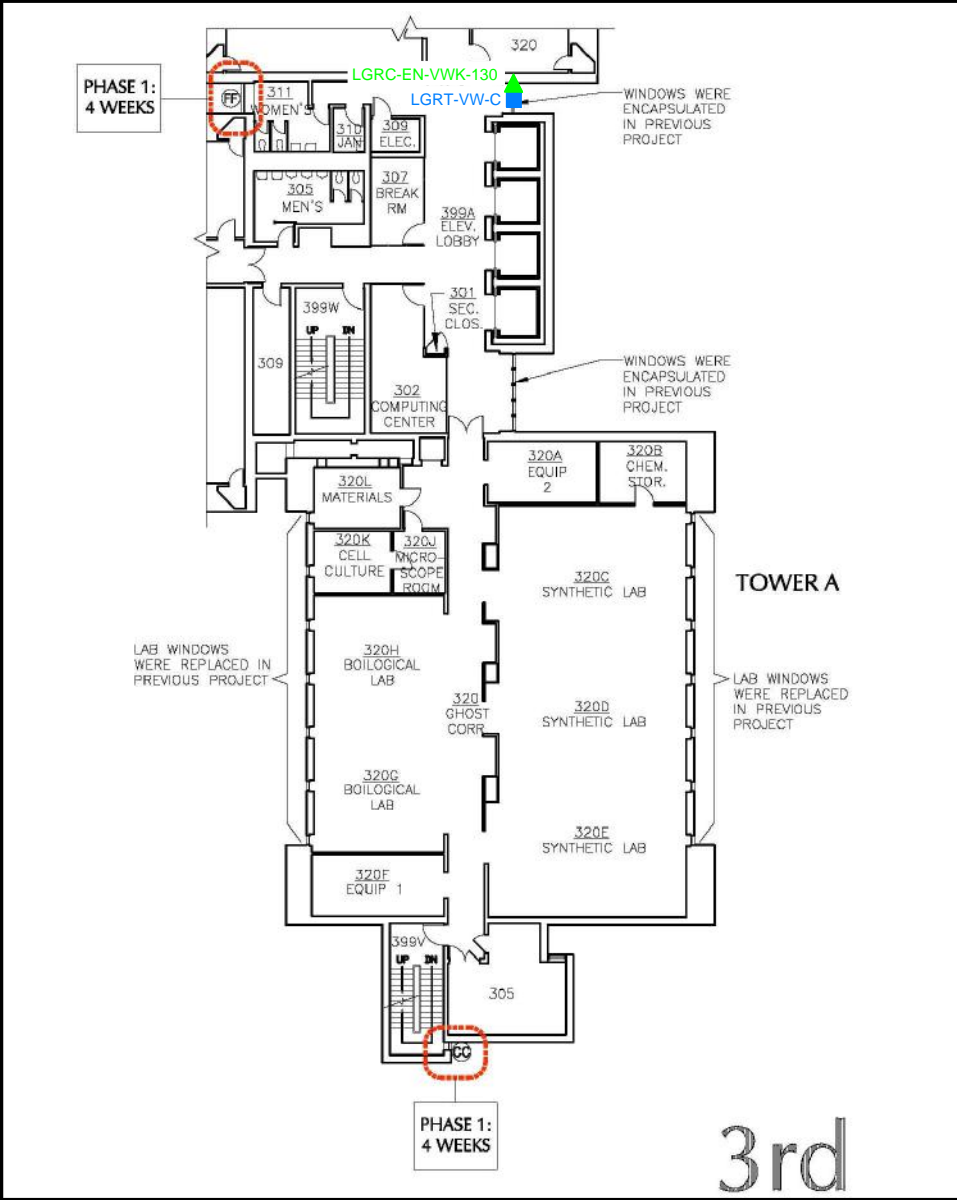
LEGEND

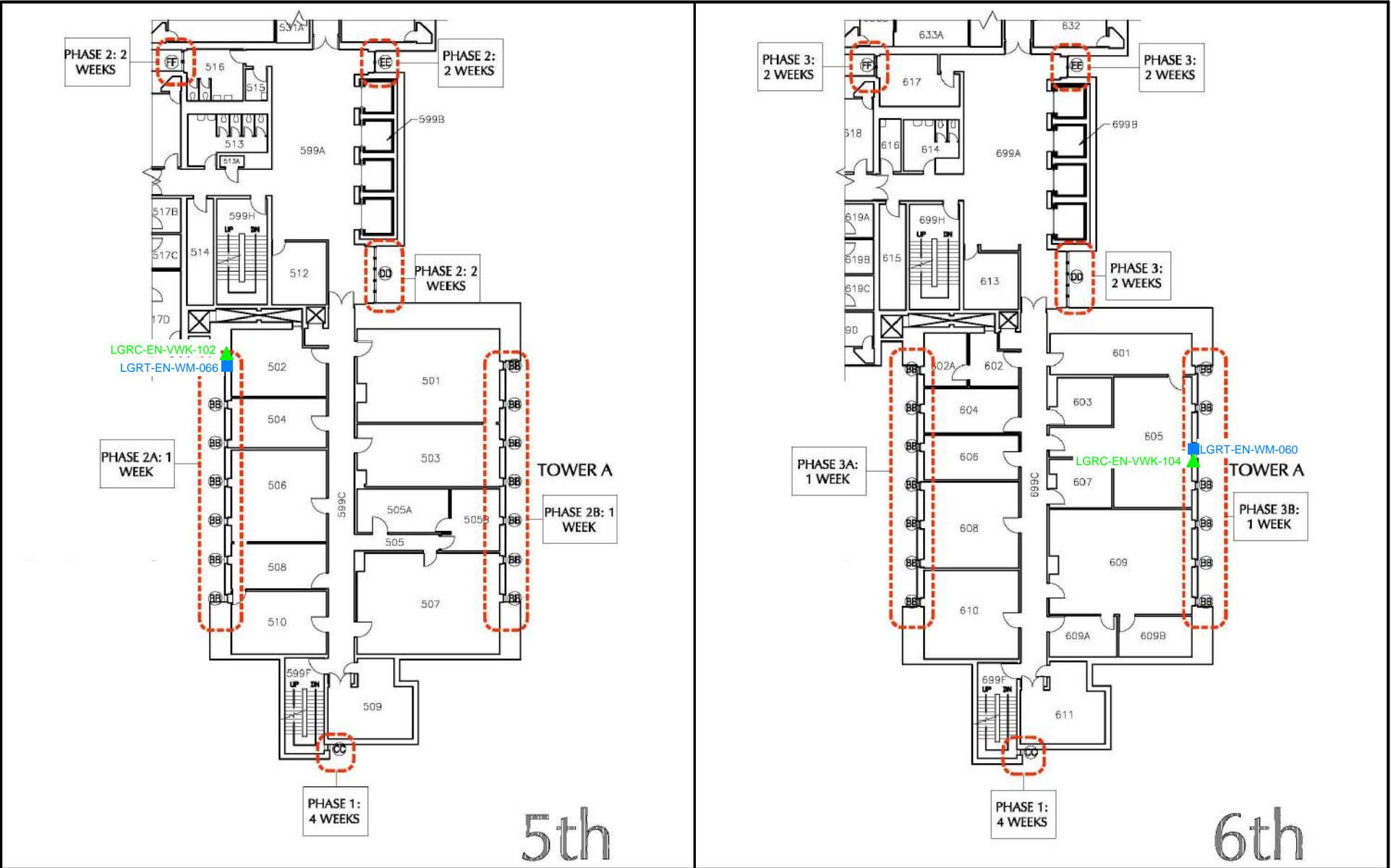
LGRT-EN-WM-067 ■ POST-CLEANING VERIFICATION WIPE SAMPLE LOCATION AND IDENTIFIER

LGRC-EN-VWK-124 ▲ POST-ENCAPSULATION BASELINE WIPE SAMPLE LOCATION AND IDENTIFIER

NOTES:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC. MODIFIED WITH THE ADDITION OF VERIFICATION SAMPLES FOR PCB INTERIM MEASURES ACTIVITIES. ALL OTHER INFORMATION INCLUDED AS ORIGINALLY PRESENTED IN THE DRAFT DESIGN DRAWINGS.
2. SAMPLE FREQUENCY OF ONE WIPE COLLECTED PER FLOOR, IN ACCORDANCE WITH THE INTERIM MEASURE PLAN.





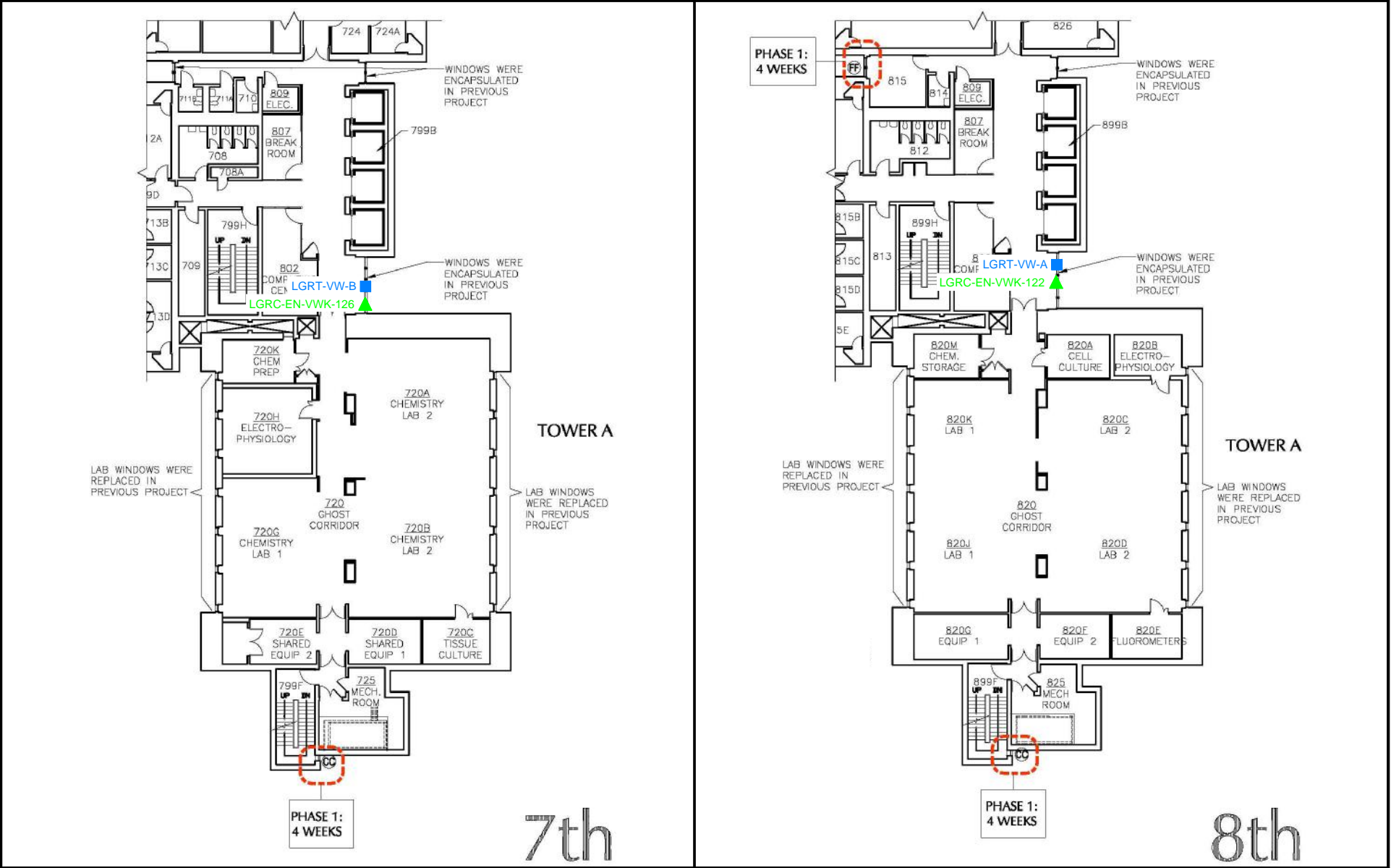
LEGEND

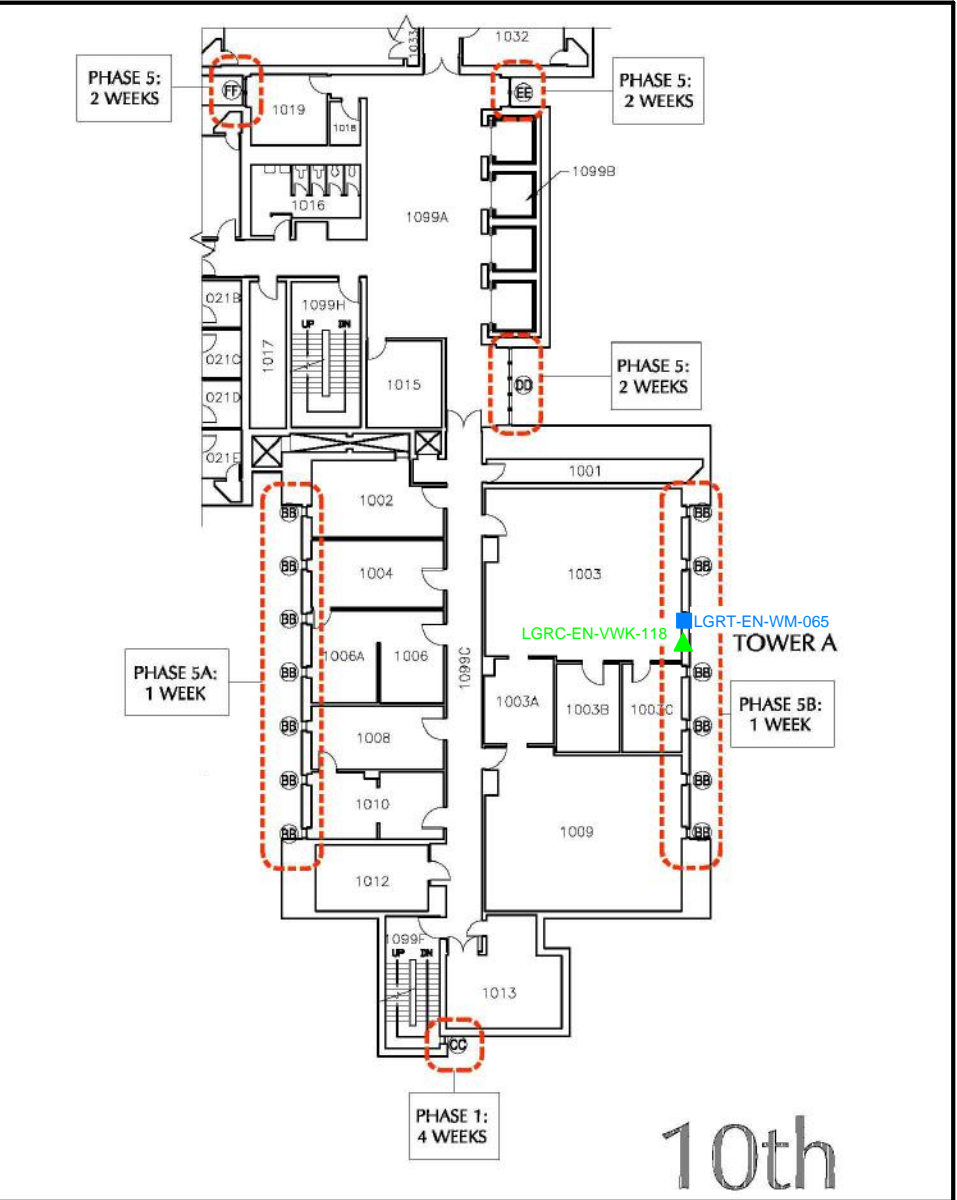
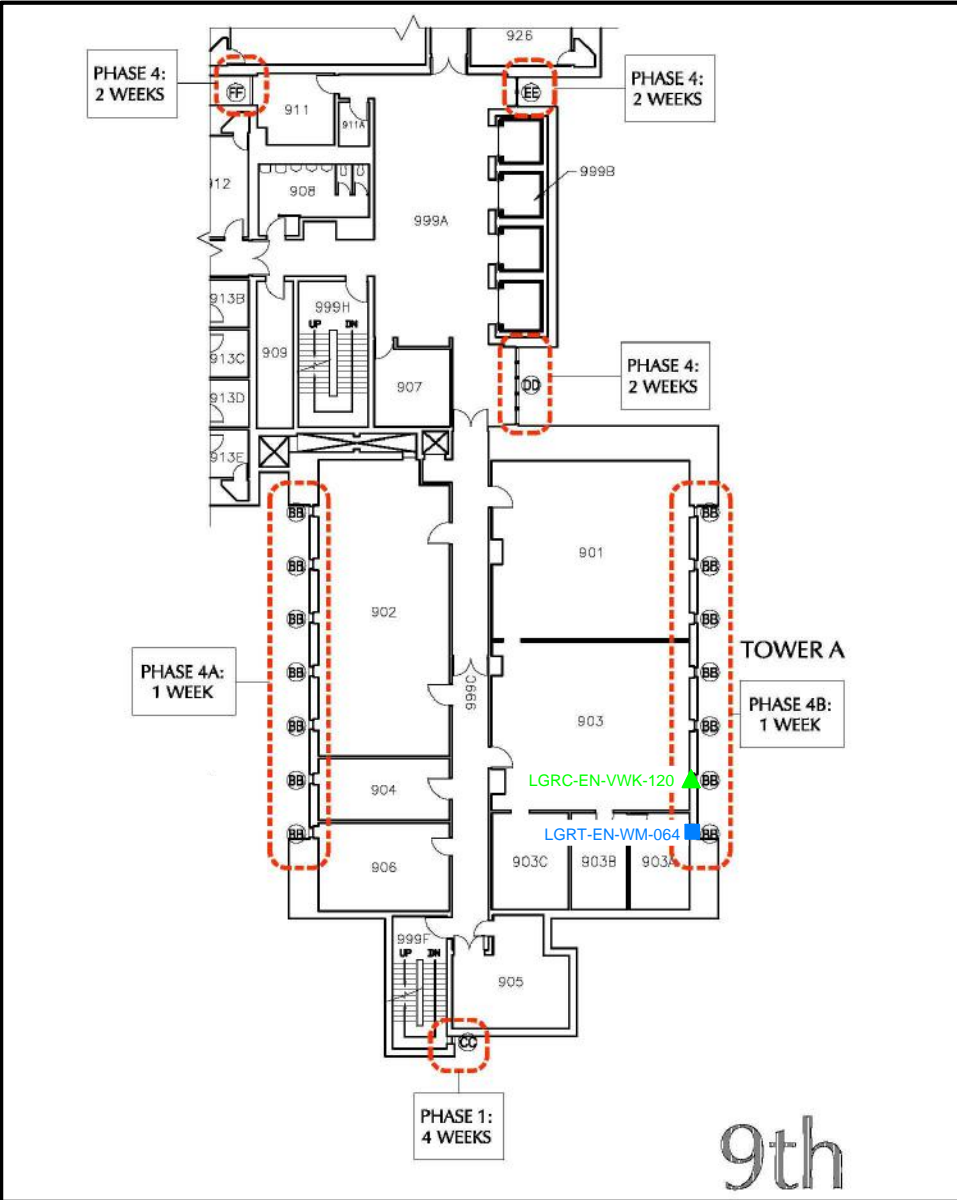
LGRT-EN-WM-066 ■ POST-CLEANING VERIFICATION WIPE SAMPLE LOCATION AND IDENTIFIER

LGRC-EN-VWK-104 ▲ POST-ENCAPSULATION BASELINE WIPE SAMPLE LOCATION AND IDENTIFIER

NOTES:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC. MODIFIED WITH THE ADDITION OF VERIFICATION SAMPLES FOR PCB INTERIM MEASURES ACTIVITIES. ALL OTHER INFORMATION INCLUDED AS ORIGINALLY PRESENTED IN THE DRAFT DESIGN DRAWINGS.
2. SAMPLE FREQUENCY OF ONE WIPE COLLECTED PER FLOOR, IN ACCORDANCE WITH THE INTERIM MEASURE PLAN.





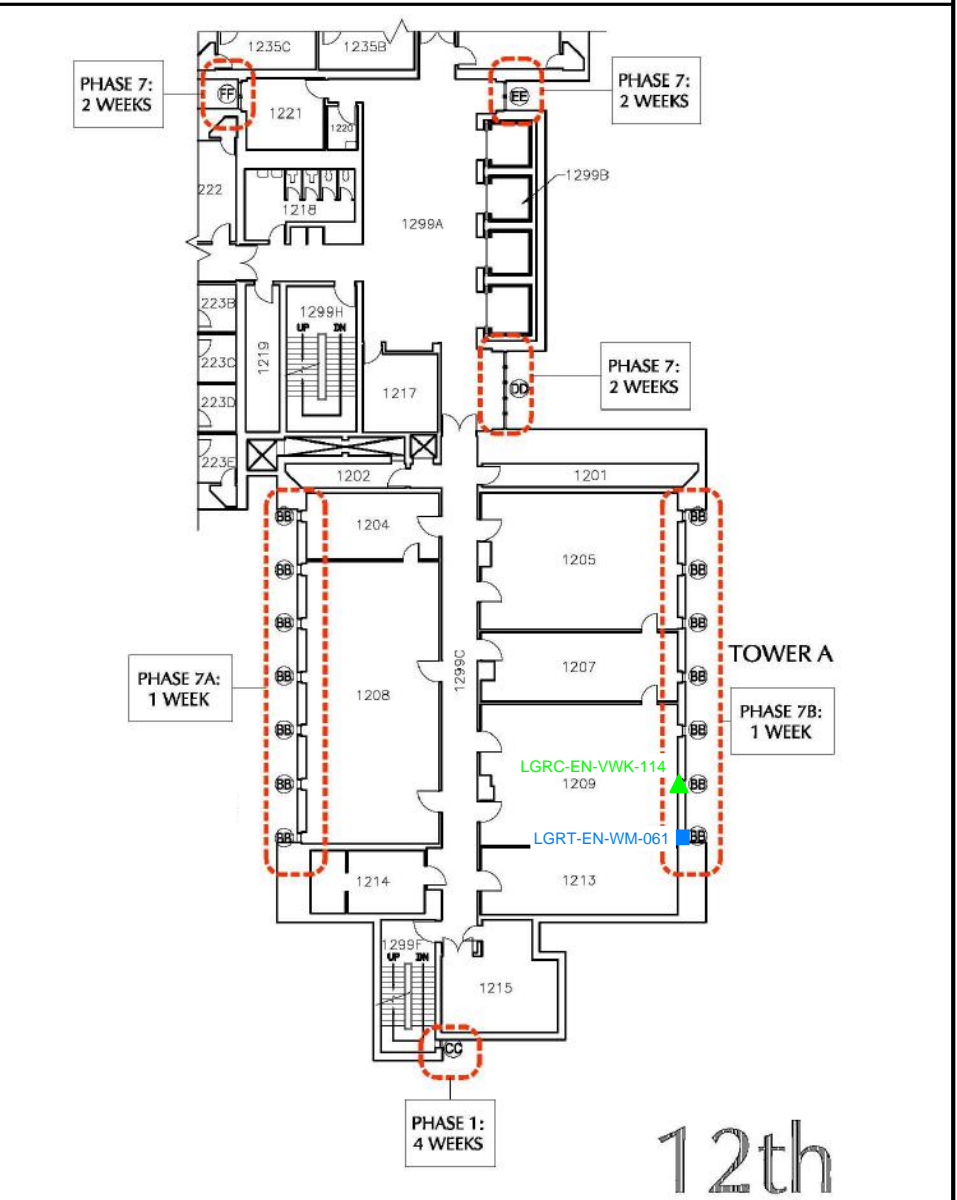
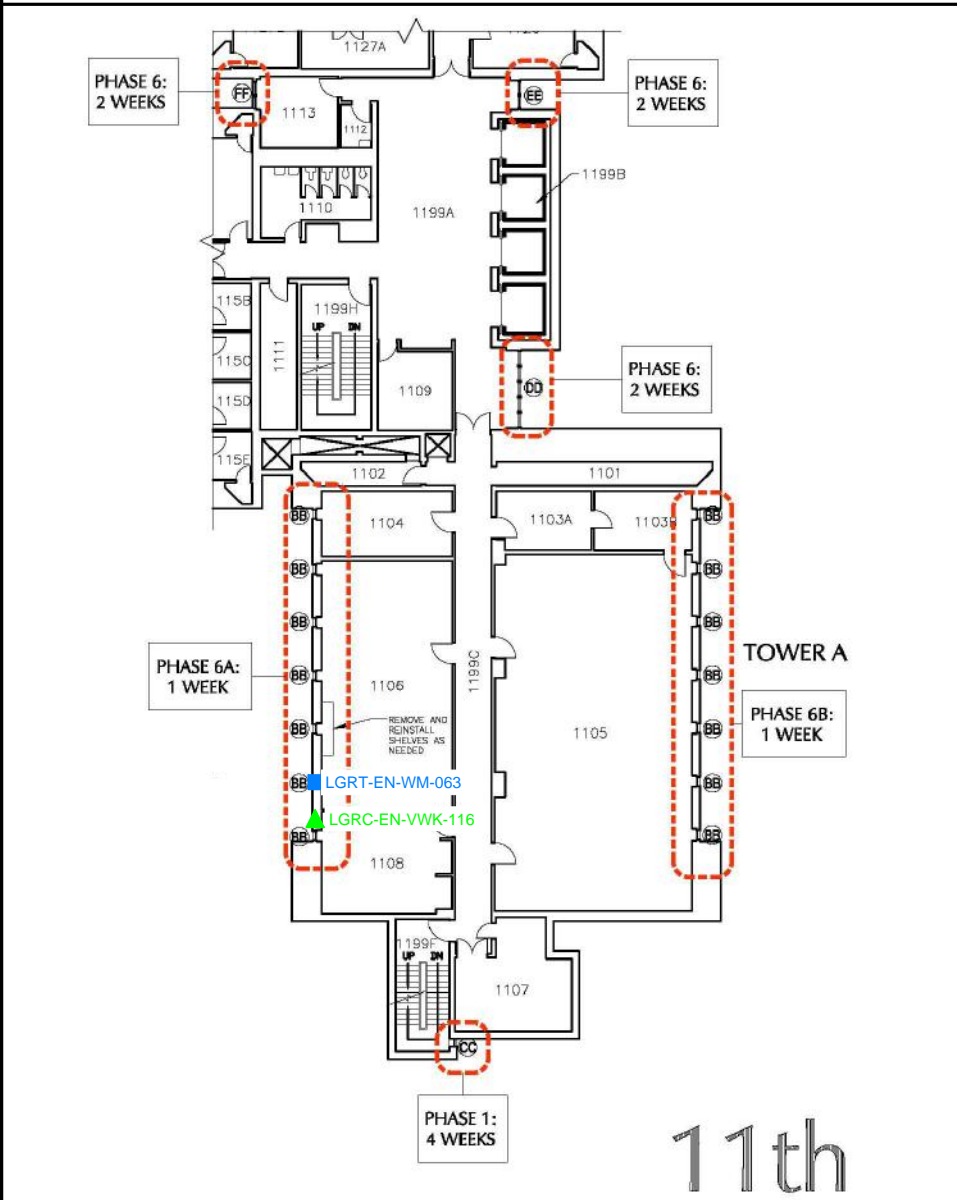
LEGEND

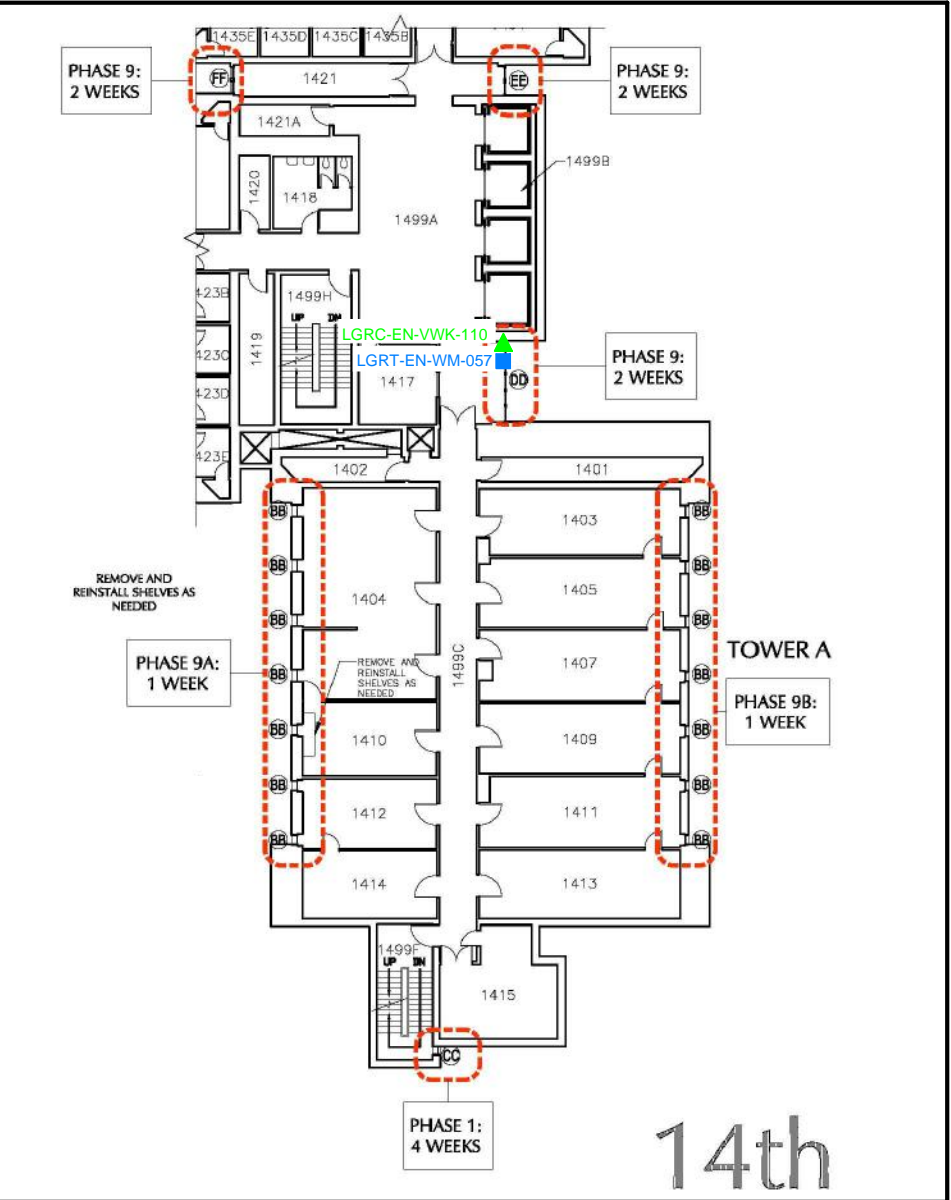
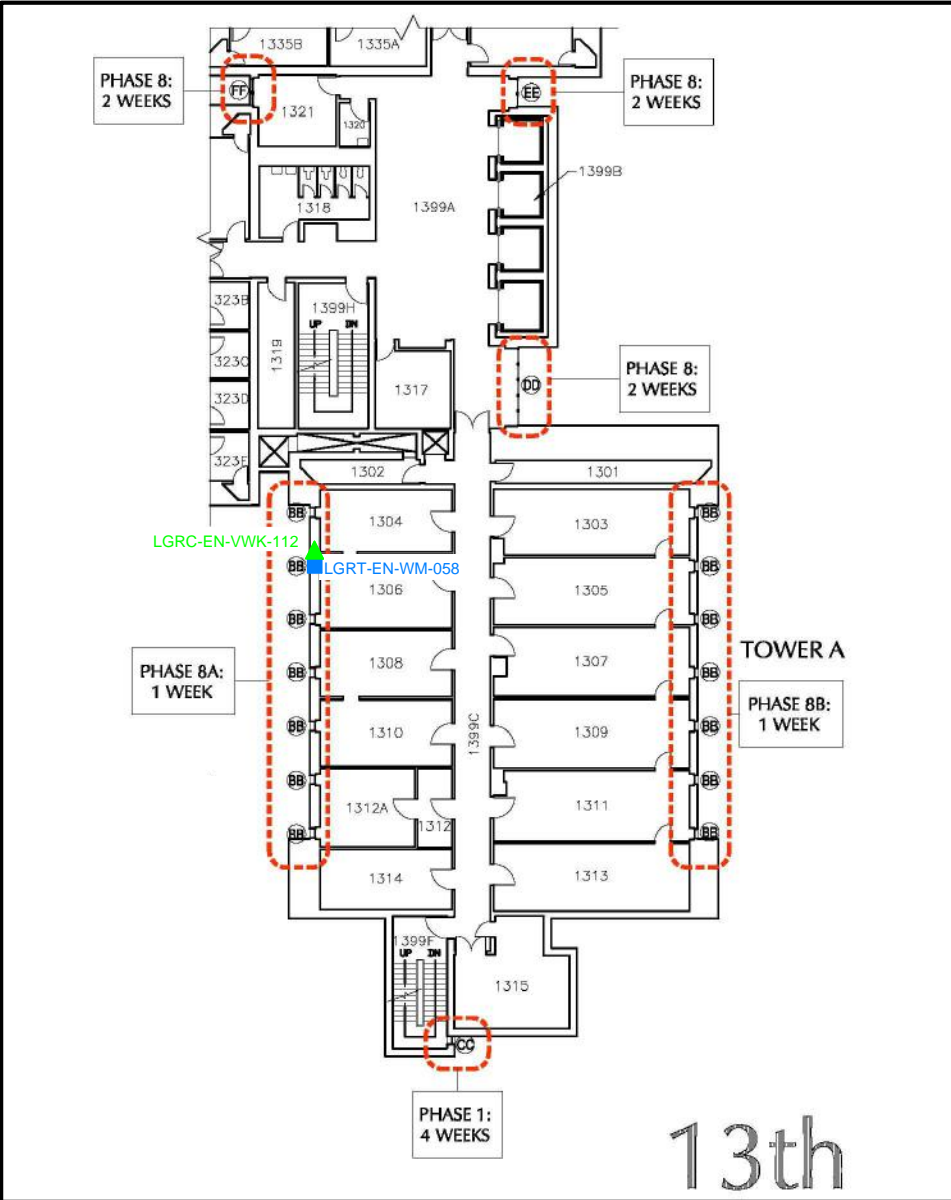
LGRT-EN-WM-064 ■ POST-CLEANING VERIFICATION WIPE SAMPLE LOCATION AND IDENTIFIER

LGRC-EN-VWK-104 ▲ POST-ENCAPSULATION BASELINE WIPE SAMPLE LOCATION AND IDENTIFIER

NOTES:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC. MODIFIED WITH THE ADDITION OF VERIFICATION SAMPLES FOR PCB INTERIM MEASURES ACTIVITIES. ALL OTHER INFORMATION INCLUDED AS ORIGINALLY PRESENTED IN THE DRAFT DESIGN DRAWINGS.
2. SAMPLE FREQUENCY OF ONE WIPE COLLECTED PER FLOOR, IN ACCORDANCE WITH THE INTERIM MEASURE PLAN.





LEGEND

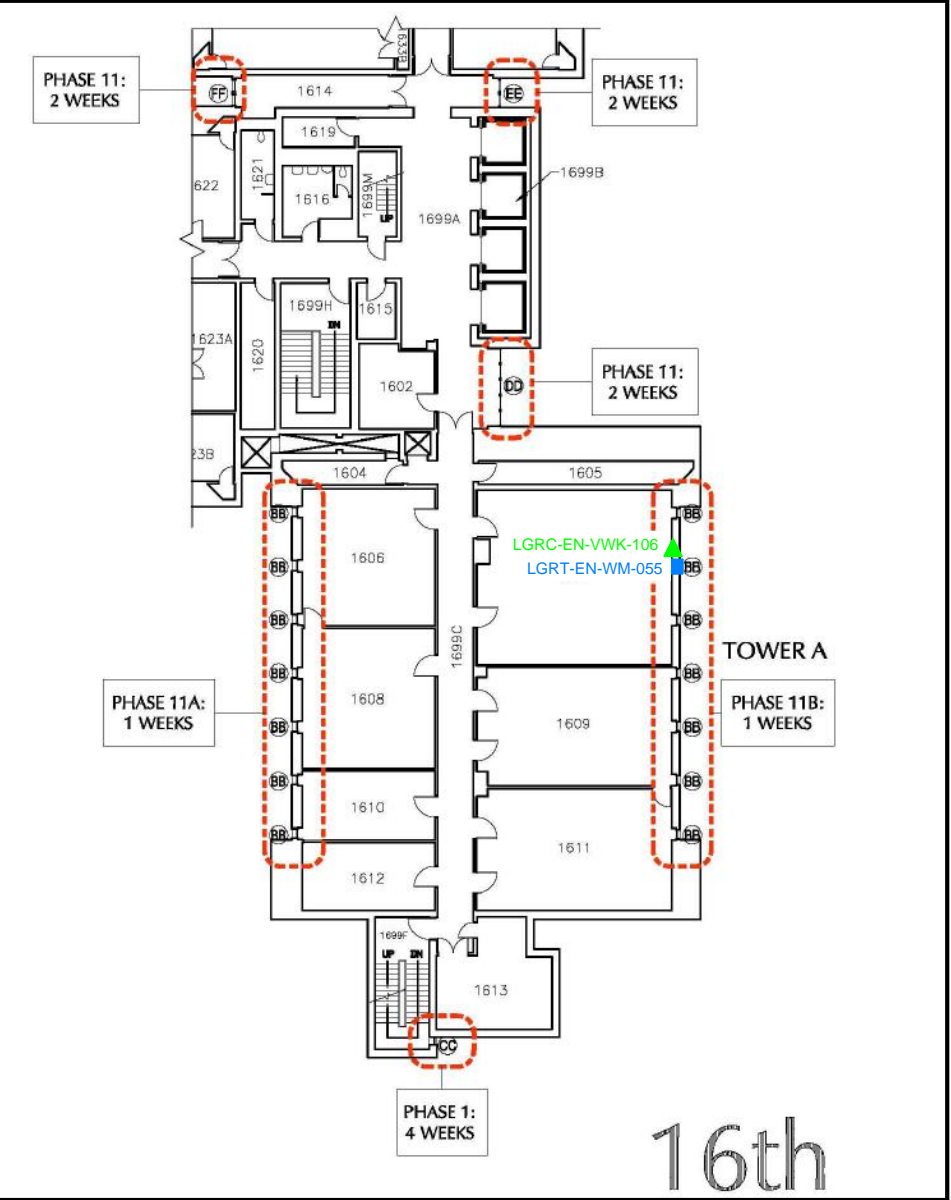
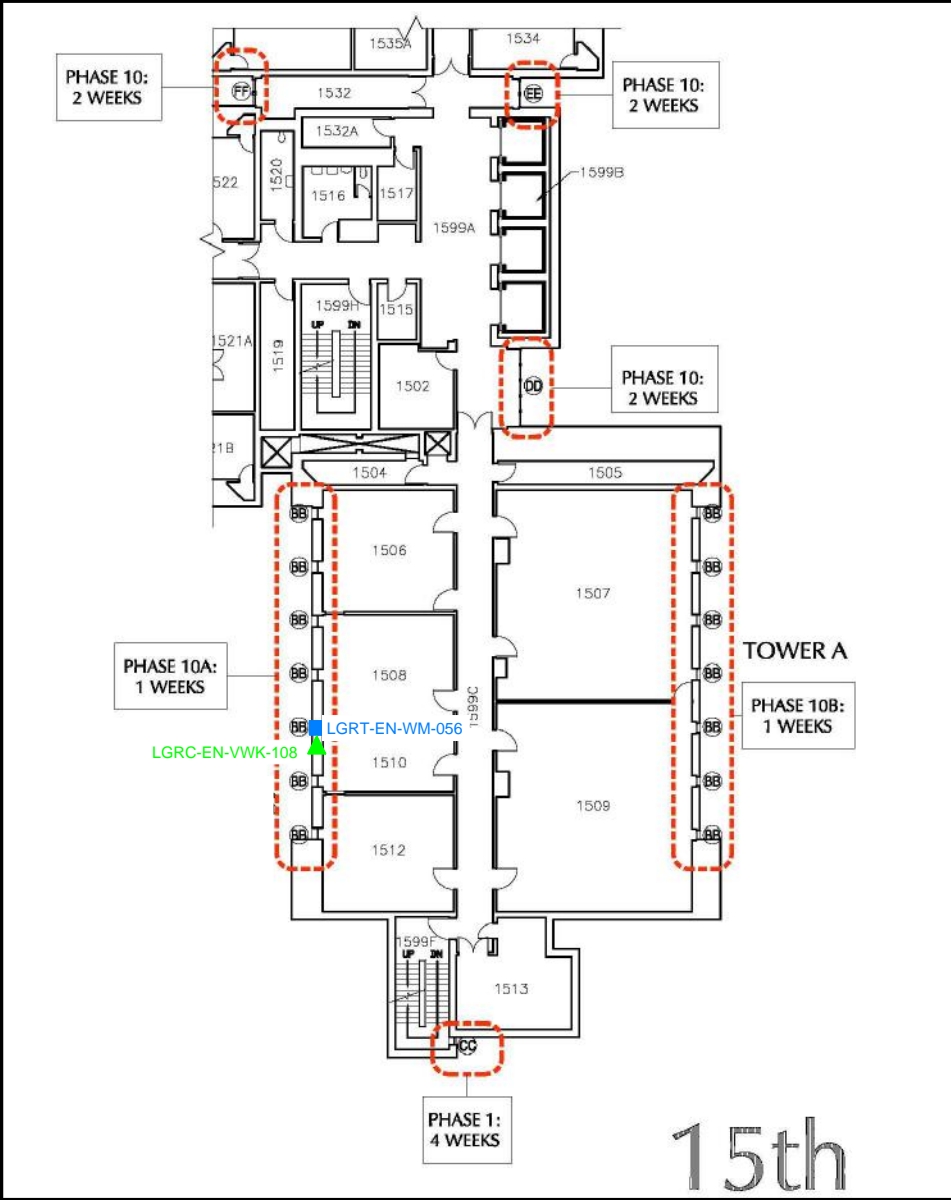
LGRT-EN-WM-058 ■ POST-CLEANING VERIFICATION WIPE SAMPLE LOCATION AND IDENTIFIER

LGRC-EN-VWK-104 ▲ POST-ENCAPSULATION BASELINE WIPE SAMPLE LOCATION AND IDENTIFIER

NOTES:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC. MODIFIED WITH THE ADDITION OF VERIFICATION SAMPLES FOR PCB INTERIM MEASURES ACTIVITIES. ALL OTHER INFORMATION INCLUDED AS ORIGINALLY PRESENTED IN THE DRAFT DESIGN DRAWINGS.

2. SAMPLE FREQUENCY OF ONE WIPE COLLECTED PER FLOOR, IN ACCORDANCE WITH THE INTERIM MEASURE PLAN.



DEPARTMENTS:

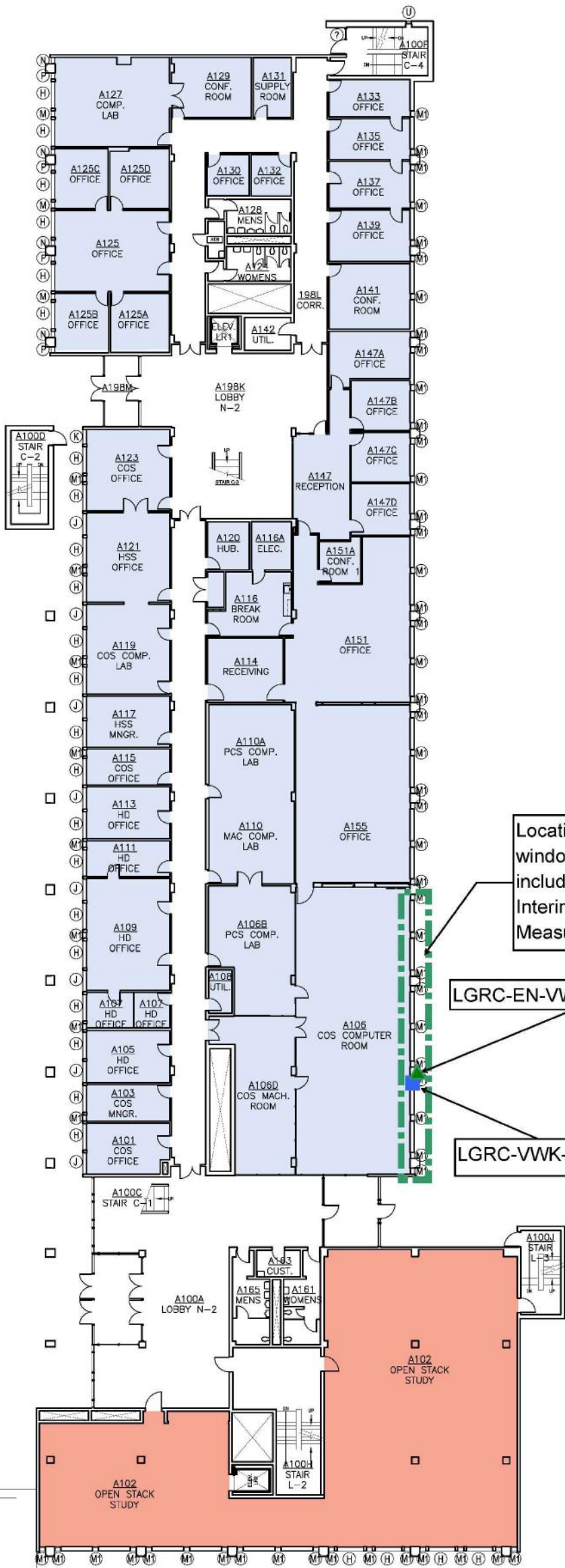
- COMPUTING / NETWORKING
- LIBRARY ADMINISTRATIVE SERVICE

LGRT-EN-WM-058 ■ Post-cleaning verification
wipe sample location and identifier.

LGRC-EN-VWK-104 ▲ Post-Encapsulation
Verification Wipe Sample Location and Identifier.

NOTES:

1. ORIGINAL DESIGN DRAWINGS BY GOLDMAN REINDORF ARCHITECTS INC. MODIFIED WITH THE ADDITION OF VERIFICATION SAMPLES FOR PCB INTERIM MEASURES ACTIVITIES. ALL OTHER INFORMATION INCLUDED AS ORIGINALLY PRESENTED IN THE DRAFT DESIGN DRAWINGS.
2. WINDOWS OUTSIDE OF ROOM A106 REMOVED AND REPLACED AS PART OF THE LOW-RISE WINDOW REPLACEMENT PROJECT TO BE COMPLETED IN Q1 2015.



1st

LEDERLE GRADUATE RESEARCH CENTER
WINDOW REPLACEMENT KEY PLAN

TITLE
LOW RISE FIRST FLOOR PLAN

SCALE
NTS
DATE
12/07/12



FIGURE 2-5

JOB NO: 210918
DATE: APRIL 2014
SCALE: NOT TO SCALE

UMASS AMHERST
LEDERLE GRADUATE RESEARCH CENTER

LEDERLE GRADUATE RESEARCH CENTER
WINDOW ENCAPSULATION PROJECT

VERIFICATION WIPE
SAMPLE LOCATIONS –
LOW RISE COMPUTER ROOM

DESIGNED BY: EVR
CHECKED BY: JAH
DRAWN BY: EVR
FIGURE 2-4-2-5.DWG



40 Shattuck Road | Suite 110
Andover, Massachusetts 01810
866.702.6371 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

APPENDIX A: PCB REMEDIATION COMPLETION REPORT – NIH RENOVATION PROJECT



January 8, 2013

Ms. Kimberly Tisa
PCB Coordinator
U.S. Environmental Protection Agency Region 1
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

Re: **PCB Remediation Completion Report**
Lederle Graduate Research Center – Tower A
University of Massachusetts, Amherst, Massachusetts

Dear Ms. Tisa:

On behalf of the University of Massachusetts, the attached letter report has been prepared to document the polychlorinated biphenyl (PCB) remediation activities conducted between February and August 2012 as part of the National Institute of Health (NIH) Grant Lab Renovation project at the Lederle Graduate Research Center Tower A on the University of Massachusetts (UMass) campus in Amherst, Massachusetts.

The PCB remediation activities were integrated into planned renovation activities including upgrades to the respective laboratory and lobby spaces of the third, seventh, and eighth floors of Tower A. PCB related activities performed during the renovation project included window removal and off-site disposal (with PCB-containing glazing sealant) and encapsulation of window glazing sealants at select locations.

Prior to implementation, notification of the activities was provided to the United States Environmental Protection Agency (EPA) in a letter dated December 8, 2011 submitted in accordance with the requirements of the Draft Consent Agreement/Final Order (CAFO) that was under negotiation between UMass and EPA at the time (the CAFO was subsequently finalized).

If you have any comments, questions, or require further information, please do not hesitate to e-mail or call me at the number listed above.

Sincerely,

WOODARD & CURRAN INC.

Jeffrey A. Hamel, LSP, LEP
Senior Vice President

JAH
201918

Enclosure(s)

cc: Theresa Wolejko, University of Massachusetts



December 17, 2012

Mr. Mitchell Goldman
Goldman Reindorf Architects
427 Watertown Street
Newton, Massachusetts 02458

Re: **PCB Remediation Activities – Completion Report**
NIH Renovation Project
Lederle Graduate Research Center – Tower A
University of Massachusetts, Amherst, Massachusetts

Woodard & Curran has prepared this letter to document the polychlorinated biphenyl (PCB) remediation activities conducted between February and August 2012 as part of the National Institute of Health (NIH) Grant Lab Renovation project at the Lederle Graduate Research Center Tower A on the University of Massachusetts (UMass) campus in Amherst, Massachusetts.

PCB related activities performed during the renovation project included window glazing sealant removal with off-site disposal and encapsulation of window glazing sealants at select locations. Prior to implementation, notification of the activities was provided to the United States Environmental Protection Agency (EPA) in a letter dated December 8, 2011 submitted in accordance with the requirements of the Draft Consent Agreement/Final Order (CAFO) that was under negotiation between UMass and EPA at the time (the CAFO was subsequently finalized).

The remediation project team consisted of the following parties:

- University of Massachusetts Amherst - Owner
- Goldman Reindorf Architects Inc. (GRA) – Project Designer and Architect
- D.A. Sullivan & Sons, Inc. (DAS) – General Contractor
- RM Technologies, Inc. (RMT) – PCB Remediation Subcontractor
- Woodard & Curran – PCB Remediation Consultant
- Con-Test Analytical Laboratory – Laboratory for PCB sample analysis

Activities associated with PCB-containing window glazing sealants included in the scope of the NIH renovation project included:

- Removal and replacement of 42 laboratory windows throughout the 3rd, 7th and 8th floors of Tower A. Following removal, the area was cleaned and inspected to verify removal; and
- Implementation of Interim Measures (i.e., encapsulation) associated with the elevator lobby window frames located on the 1st, 3rd, 7th and 8th floors of Tower A.

Summaries of the activities completed, results of visual inspections, and the results of verification sampling following remediation are presented in the sections below.



Laboratory Window Removal

As part of the NIH renovations, laboratory windows on the 3rd, 7th, and 8th floors of the Tower A high-rise were replaced. The window replacement activities were conducted in accordance with the project specifications and as summarized below.

Prior to removal, site preparations and controls were implemented and maintained as follows:

- The work was conducted within polyethylene containments established on each floor for the asbestos removal aspects of the project;
- HEPA filtration was established within each containment to establish negative pressure controls;
- Access to the active work areas was limited to authorized personnel only; and
- At the conclusion of each work day or following completion of work within an area, the work area, tools, and equipment were decontaminated by HEPA vacuuming and wet wiping using diesel fuel and cloth rags.



Polyethylene Containment

To remove the windows, RMT used reciprocating saws to cut the metal clips holding the window frames to the surrounding concrete. Following removal, window frames were double wrapped as a single unit in polyethylene sheeting within the work area containments. At the completion of each shift or when work was completed within an area, all wastes were transported to lined, labeled roll-off containers within the on-site waste storage area located in the courtyard area between the Tower A high rise and the LGRC low rise building for disposal as PCB Bulk Product Waste and Asbestos Containing Material (ACM).

Elevator Lobby Window Interim Measures

As indicated in the December 8, 2011 PCB Remediation Activity notification letter, interim measures were conducted in accordance with the PCB Interim Measures Plan and the project specifications on elevator lobby windows within the project work area given that window removal could not be conducted due to structural concerns with the building (these windows span several floors) and the extensive requirements to support their removal.

Prior to implementation of the interim measures, site controls were established through the placement of polyethylene sheeting on the floors surrounding the work areas and access to the areas was limited to authorized personnel through the posting of signs at the work area perimeter.

RMT personnel removed all loose glazing from the glass to metal frame joints located at the perimeter of each window using a HEPA vacuum. Following removal, the vacuumed surfaces and window frames and components (including glass) were decontaminated using Klean-Strip TSP Plus cleaner. Once the window cleaning step was completed, RMT removed all grate panels from the metal ventilation ductwork located at the base of each window and removed any debris and particulates with a HEPA vacuum. As a final step, the horizontal surfaces surrounding each window (tops of ventilation ducts and window ledges) were cleaned using a Klean-Strip TSP Plus cleaner.



At the conclusion of each work day or following completion of work within an area, the work area, tools, and equipment were decontaminated by wet wiping and vacuuming. All disposal cleaning materials, PPE, vacuum filter bags, and trash generated during the decontamination activities were placed in lined and labeled steel, open-top 55-gal drums in the designated hazardous waste storage area.

Elevator Lobby Window Glazing Encapsulation

Following completion of the window cleaning, a strip of aluminum foil tape (Carolina Tape Product # 957) was applied to the glazing sealants around the full perimeter of each window. A bead of black Dow 795 silicone caulking was then applied over the foil tape. Visual confirmation that all glazing sealants were covered by the tape and caulking was made by Woodard & Curran personnel.



Final Caulking Application

Verification Wipe Sampling

Following completion of the interim measures, verification wipe samples were collected by Woodard & Curran personnel as follows:

- Window Sills – One wipe sample was collected from the metal horizontal sills on each floor (total of four wipe samples) using hexane-saturated gauze wipes in accordance with the standard wipe test method under 40 CFR 761.123; and
- Encapsulated Surfaces – One wipe sample was collected from encapsulated surfaces on the 8th floor window using a hexane-saturated gauze wipe grasped with metal tweezers and passed across the installed silicone caulking surface.

All wipe samples were submitted to ConTest Analytical Laboratories under the standard chain of custody procedures. Samples were extracted via the 3540C soxhlet extraction and analyzed via EPA method 8082.

Analytical results of the wipe samples were as follows:

- Window Sills – Analytical results indicated that PCBs were below the high occupancy use clean up standard for non-porous surfaces of 10 $\mu\text{g}/100\text{cm}^2$ in the four samples (total PCBs reported at concentrations of 0.21, 0.57, 0.72 and 1.15 $\mu\text{g}/100\text{cm}^2$). Based on the results of the visual inspection and verification wipe sampling, no additional decontamination of the horizontal sills or ventilation duct within the project work areas is required; and
- Encapsulated Surfaces – Analytical results indicated that PCBs were present at a concentration of 1.5 $\mu\text{g}/100\text{cm}^2$ in the sample collected. Additional monitoring of these surfaces will be incorporated into the interim measures for the LGRC Tower A building.

A summary of the verification wipe sample results is presented on Table 1. The complete analytical laboratory reports are provided in Attachment 1.



Waste Management and Disposal

At the conclusion of the project, all waste materials were transferred off-site for disposal under nonhazardous waste manifests as PCB Bulk Product Waste and ACM. One 30-yard roll-off container and one 55-gallon drum of waste was shipped off site for disposal to the Minerva Enterprises Landfill in Waynesburg, Ohio. Copies of the waste documents for the above waste streams have been included as Attachment 2.

If you have any questions or require further information, please feel free to contact us via email or by phone at (978) 557-8150.

Sincerely,

WOODARD & CURRAN INC.

George J. Franklin, CHMM
Project Scientist

Jeffrey A. Hamel, LSP, LEP
Senior Vice President

cc: Joseph Balzano, University of Massachusetts
Terri Wolejko, University of Massachusetts
Peter Gray-Mullen, University of Massachusetts

Enclosures: Table 1
Attachments 1 and 2

Table 1
Summary of Verification Wipe Sampling Results

NIH Grant Renovations
LGRC Tower A - UMass Amherst

Location	Sample ID	Sample Date	Aroclor 1254 (µg/100cm ²)	Aroclor 1260 (µg/100cm ²)	Total PCBs (µg/100cm ²)	Location Description
Window Sill Verification Wipe Samples						
1st floor lobby	LGRT-VW-D	07/06/12	0.41	0.31	0.72	Metal sill, 3 inches from window at first window north of elevators
3rd floor lobby	LGRT-VW-C	07/06/12	0.21	< 0.20	0.21	Metal sill, 6 inches from window at 4th window south of elevator
7th floor lobby	LGRT-VW-B	07/06/12	0.29	0.28	0.57	Metal sill, 3 inches from window at southernmost window in western end of lobby
8th floor lobby	LGRT-VW-A	08/24/12	0.58	0.57	1.15	Metal sill, 4 inches from window at 1st window south of elevator
Encapsulation Surfaces Wipe Sample						
8th floor lobby	LGRC-PT-WP-051	10/09/12	1.50	< 0.20	1.50	Right vertical joint.

Notes:

Wipe samples collected from a 100cm² area using a hexan saturated gauze pad in accordance with the standard wipe test method of 40 CFR 761.123. Wipe sample collected from encapsulated surface collected using modified procedure due to narrow width of area. Total PCBs reported as Aroclor 1254 or 1260. No other Aroclors reported at concentrations above the minimum laboratory reporting limits.