REMEDIAL ACTION WORKPLAN
FOR IMPACTS TO CONCRETE QUALITY
FORMER TRANSFORMER AREA

STRAWBERRY MANSION HIGH SCHOOL
3133 Ridge Avenue
Philadelphia, Pennsylvania 19132

Prepared for:

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September 14, 2016
200083101

LANGAN

TABLE OF CONTENTS

PAGE

1.0 INTRODUCTION 1
1.1 Site Background Information 1
1.2 Remedial Action Work Plan Objectives and Scope 2
2.0 PRE-REMOVAL ACTIVITIES 1
2.1 Pre-Characterization Sampling 1
2.2 Selection of Subcontractors 3
3.0 CONCRETE REMOVAL AND HANDLING ACTIVITIES 4
3.1 Equipment for Concrete Removal 4
3.2 Concrete Removal Limits 4
3.3 Concrete Removal Process 4
4.0 RESTORATION 6
5.0 EQUIPMENT AND VEHICLE DECONTAMINATION 7
6.0 QUALITY ASSURANCE PLAN 8
6.1 Laboratory Quality Assurance 8
6.1.1 Sampling Program 8
6.1.2 Summary of Sampling Methodologies 8
6.1.3 Quality Assurance/Quality Control Sample Collection Procedures 8
6.1.4 Chain of Custody 8
6.1.5 Laboratory Sample Storage Procedures 9
6.1.6 Laboratory Data Deliverable Format 9
6.2 Project Quality Assurance 9
6.2.2 Field Data and Notes 9
6.2.3 Equipment 9
6.2.4 Procedures 10
6.2.5 Peer Reviews 10
6.2.6 Documentation 10
6.2.7 Professionals 10
7.0 PROJECT ORGANIZATION 11
7.1 Project Coordination 11
7.2 Personnel 11
7.3 Field Operations 11
8.0 IMPLEMENTATION SCHEDULING AND REPORTING 13
9.0 HEALTH AND SAFETY 14
10.0 SUMMARY AND LIMITATIONS 15

TABLES

Table 1 Concrete Pre-Characterization Results

FIGURES

Figure 1 Site Location Map
Figure 2 Site Plan – Building Layout
Figure 3 Concrete Sampling Grid
Figure 4 Pre and Post Sampling Grid
Figure 5 Concrete Removal Area

APPENDICES

Appendix A Health and Safety Plan

1.0 INTRODUCTION

Langan Engineering and Environmental Services, Inc. (Langan) has prepared this Remedial Action Workplan (RAW) to address impacts to the concrete quality by polychlorinated biphenyls (PCBs) that exceed the criteria presented in the Environmental Protection Agency Toxic Substances Control Act (TSCA) Code of Federal Regulation (CFR) Title 40 Part 761 in the basement transformer area of Strawberry Mansion High School (Site). The Site is located 3133 Ridge Pike in Philadelphia, Pennsylvania. **Figure 1** topographically depicts the high school in relation to the surrounding area.

Transformers have been replaced periodically at Strawberry Mansion High School. The work on replacing this particular transformer at the Site began in August 2014. Currently the basement is not used for classroom activities. Building construction is steel frame, concrete slab on grade, with a combination cinder block/corrugate steel walls and tar roof/corrugated steel ceilings. **Figure 2** depicts the general configuration of the Facility.

1.1 Site Background Information

Below is a summary of the project history:

- Carr & Duff contracted with the Philadelphia School District to perform "PCB Transformer Replacement at Strawberry Mansion High School."
- Carr & Duff contracted with PSC Environmental (PSC) to remove PCB-containing dielectric fluid from a transformer to be removed (Serial Number 3475168).
- Work was initiated on August 7, 2014. Prior to removal, the floor was covered with plastic in case any dielectric fluid leaked during transfer. The dielectric fluid was transferred to totes and ultimately to drums by PSC for off-site disposal by Clean Harbors, Inc.
- During the dielectric fluid removal and transfer activities, several ounces of PCB-containing dielectric fluid leaked onto the plastic and through previously unidentified tears onto the concrete below.
- Mr. Scott Rice of the United States Environmental Protection Agency (USEPA) was notified of the spill by Keating Environmental Management (KEM) (consultant for the Philadelphia School District). It is Langan's understanding that KEM developed and oversaw the spill clean-up work plan and that all coordination with the USEPA was conducted by KEM.
- It was reported that the spill was wiped up with sorbent pads and then a double wash was conducted with a solution of simple green by PSC. The area (approximately 1.5 by 2 feet in size) was then encapsulated with gray epoxy encapsulant. No wipe testing was conducted prior to placement of the encapsulant.
- On August 8, 2015, a second layer of epoxy (tan in color) was applied over the initial layer of encapsulant.

Mr. Robert Ehlenberger, who at the time was a representative of Amec Foster Wheeler (AFW) under contract to Carr & Duff, conducted a preliminary visual assessment in March of 2015, and had preliminary discussions with Mr. Scott Rice of the U.S. Environmental Protection Agency (USEPA) regarding an appropriate course of action to resolve open issues related to potential residual impacts to the site.

Under the direction of Mr. Rice, USEPA, the appropriate next step was to prepare a focused sampling plan for collection of chip samples in the area of the spill to ascertain if the cleanup conducted by PSC effectively removed any PCB-containing fluids and avoided an impact to the underlying concrete. If the chip samples did not detect concentrations of PCBs in excess of the project cleanup standard (1 ppm), Mr. Rice agreed that it should not be necessary to maintain encapsulation (no O&M moving forward) or to remediate the area further (removal of concrete).

On September 14, 2015, AFW collected samples of concrete within the area that had previously been encapsulated. The purpose of this sampling event was to characterize the in-place concrete prior to any remedial action, if necessary, including potential removal of impacted concrete at the Site. The analytical results revealed that PCBs were present in the samples from the concrete below the encapsulant at concentrations ranging from 22.5 ppm to 8,110 ppm in the samples collected from the 0-1 and 1-2 cm depths.

1.2 Remedial Action Work Plan Objectives and Scope

The objective of this RAW is to outline the means and methods involved with the removal, handling and disposal of impacted concrete and waste materials generated in the remedial action, such as:

- Plastic sheeting and wood used to create an enclosure around the work area,
- Paper towels and rags with cleaning solution consisting of water and Simple Green which would be generated in decontamination of the reusable equipment and exposed surfaces, and
- Protective equipment.

The remedial action is being conducted to remove concrete with detected concentrations of PCBs (consisting entirely of Aroclor 1260) in characterization samples that ranged from 604 milligrams per kilogram (mg/kg) to 8,110 mg/kg in the upper concrete samples (from the surface to a depth of one centimeter) and 22.5 mg/kg to 6,740 mg/kg in the concrete samples from a depth of one centimeter to a depth of two centimeters. Based on site observations and field measurements (an approximate remediation area of 16 square feet of concrete to an estimated

maximum depth of 16-inches), it is anticipated that a maximum of approximately 0.8 tons of concrete waste could be generated during remediation activities.

2.0 PRE-REMOVAL ACTIVITIES

2.1 Pre-Characterization Sampling

Since PCBs can migrate into porous surfaces (e.g., brick, masonry, concrete or wood) surface wipe sampling were no longer adequate to characterize the PCB concentration of porous surfaces related to the spill in 2014. Instead, core samples were collected to evaluate PCB concentrations in the upper two centimeters of the concrete.

The Scope of Work for pre-characterization sampling was prepared to address the technical guidance in USEPA document Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls. This document identifies that for porous surface samples, an adequate sample (as determined by the analytical laboratory) should be removed for analysis. It referenced that tools such as chisels, drills, and saws can typically be used to collect the sample, taking care to minimize dust generation. In this case, samples were collected from the upper 2 cm of the surface at five locations in the encapsulated area by pulverizing concrete with a carbide tipped drill. Several holes were drilled adjacent to each other at each location in order to obtain sufficient sample volume.

The original spill area (reported to be from the spill of several ounces of fluid and the attempt to wipe it up which spread the material and increased the size of the impacted area) was reported to be approximately 1.5 to two feet in diameter. The encapsulated area is approximately four feet by four feet and the exact area of the spill was not documented in any correspondence reviewed by AFW prior to the pre-characterization sampling. Therefore, AFW collected samples at five locations within the encapsulated area. The five sampling locations were spaced within the encapsulated area to assure that the former spill area was adequately sampled. **Figure 3** is a photo depicting the sampling grid and approximate concrete sample locations. **Figure 4** is a photo depicting the pre and post wipe sampling locations.

Prior to sampling, a health and safety plan (HASP) was prepared to control work at the Site. The HASP included:

- Procedures to isolate the work area so that dust did not migrate away from the work area,
- Specification of protective equipment to be worn by site personnel to avoid contamination of clothing, and to avoid any potential for spreading potential PCB impacts from the work area,
- Decontamination procedures for sampling equipment and non-disposable personnel protective equipment,
- The HASP required that the transformer overlying the work area be turned off and de-energized and that appropriate lock-out/tag-out procedures were in place at all times during the sampling program to protect sampling personnel, and
- Emergency contact information and a hospital route map.

AFW personnel collected ten concrete samples from the five concrete sampling locations on September 14, 2015. The transformer was de-energized and moved out of the way by Carr & Duff personnel in order to provide an un-encumbered and safe work area. The exterior walls of the neighboring transformers were lined with plastic prior to the start of work to prevent any impacts from any fugitive dust. The encapsulated area was also lined with plastic sheeting to protect areas that were not being sampled from any fugitive dust. Prior to lining the floor with plastic, five pre-sampling wipe samples (**Figure 4**) were collected within the encapsulated area for analysis of PCBs for assessment of baseline conditions. Each individual wipe sample was collected over a 10cm by 10 cm grid.

AFW collected samples at the five locations using hand drills. At each location, a carbide drill bit was used to drill into the concrete in a perpendicular manner and create granulated concrete powder for the sampling interval. The material and drill bit were moistened continuously with distilled water during sample collection to eliminate the generation of fugitive dust.

The powdered concrete from the sampling interval were collected using disposable Teflon sampling spoons. Any powdered concrete material around the sampling point was wiped up using paper towels moistened with Simple Green and then containerized for appropriate disposal. Ten concrete samples from five locations were collected for analysis. One sample was collected at each location from the surface to a depth of one centimeter and a second was collected at a depth from 1 to 2 cm. The drill hole was cleaned out after the first sample was collected by removing concrete particles with the Teflon sampling spoon and then by wiping the borehole with a clean disposable cloth wet down with Simple Green. The borehole was cleaned to avoid material from the upper sampling interval from becoming commingled with material from the second sampling interval.

The above-referenced methodology is in general accordance with the "Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs)," prepared by the Office of Environmental Measurement and Evaluation, United States Environmental Protection Agency, dated May 5, 2011.

Following collection of the samples, the plastic sheeting was wiped to remove any accumulated dust and carefully folded and collected for disposal. The exteriors of the adjacent transformer housings and the concrete floor were wiped down with paper towels sprayed with Simple Green for final cleaning. Simple Green was not sprayed directly onto the transformer or its housing for safety reasons and to prevent potential damage to the electrical equipment. Upon completion of the final cleaning, the original five wipe sampling locations were re-sampled (10 cm by 10 cm wipe samples) to confirm that there were no impacts to the transformer or the floor from the sampling program by PCBs. Upon completion of sampling, the drill holes were filled with pre-mixed concrete mortar mix and leveled with the existing floor, then painted with two coats of an epoxy encapsulant paint for restoration.

After collection, the samples were immediately placed in a cooler filled with ice. The samples were

chilled for delivery in accordance with applicable regulations and remanded to Alpha Analytical of Westborough, Ma, using chain-of-custody procedures for PCB analysis per EPA Method 8082. A targeted 30 grams of sample was collected for each depth interval sample.

Results of the analyses for concrete along with pre and post wipe samples are summarized in **Table 1**. As is indicated in the **Table 1**, all 10 concrete samples (PCB-1A through PCB-5B) have total PCB concentrations above ranging between 22 and 8,100 parts per million (ppm), the limit at which the waste becomes TSCA regulated. Pre and post wipe samples concentrations ranged between Non Detect (ND) and 29.4 ug Abs.

Results of the pre-characterization sampling event indicate that concrete will be handled and disposed of together at the Chemical Waste Management landfill in Model City, New York. Water will be handled separately, and will be disposed of at the Waste Management Corporation landfill in Kentucky.

2.2 Selection of Subcontractors

Upon approval of this RAW by Carr & Duff, The School District of Philadelphia and USEPA, Langan will finalize contracting with an appropriate remediation contractor. It is likely that the contractor will be Clean Harbors.

3.0 CONCRETE REMOVAL AND HANDLING ACTIVITIES

This section details the proposed work approach and provides general task descriptions for methods of concrete removal and handling from encapsulated former spill area.

3.1 Equipment for Concrete Removal

Based on the lack of any as-built drawings, and the resulting lack of information for utilities within the concrete, and the nature and/or type of rebar that may be present in the concrete, the concrete will be removed by jackhammering so that utilities can be observed if encountered in time to avoid damage and rebar can be worked around/removed as appropriate. To protect the environmental conditions within the HS basement, an enclosure will be set up to completely contain the work and immediate access area. The enclosure will be constructed of heavy gauge (6-mil) plastic sheeting which is secured to the floor using duct tape or adhesive caulking as necessary. Negative pressure will be maintained within the enclosure using a blower. The negative pressure inside the enclosure will prevent dust migrating into the transformer room from the work area. The blower will be equipped with a HEPA filter to prevent discharge of impacted dust into the basement area through the blower. Water may be used as needed to control dust within the enclosure area. Prior to work start, a lockout/tagout will be performed by Carr & Duff and the School District for any power sources in the vicinity of the work zone.

3.2 Concrete Removal Limits

The objective of the concrete removal program is to remove any remnant impacts to the concrete in the floor of the transformer room from PCB-containing oils that spilled during the dielectric fluid removal and transport in August of 2014. The removal of concrete will occur from the surface until the underlying gravel subgrade or compacted natural soils are encountered, or to a maximum depth of 16 inches. Horizontal limits for concrete removal are dictated by the encapsulated area established after the spill of PCB-containing dielectric oil. The encapsulated area includes the location where the fluids were spilled and the area they were spread to during the spill cleanup. Langan is proposing that the removal action include the full extent of the encapsulated area, which is an approximately 16 square-foot area. It was confirmed during a site visit made by Carr & Duff that there is not a basement below the transformer room.

3.3 Concrete Removal Process

Prior to any work to remove impacted concrete, an enclosure will be constructed around the work area. This enclosure will consist of a support mechanism and 6-mil plastic sheeting. The enclosure will be large enough to fully contain the encapsulated area, provide an adequate work space and allow for a support area where up to two drums could be placed to hold removed materials. The enclosure will be kept under negative pressure to prevent any airborne dust from leaving the work area. Discharge from the blower will be passed through a HEPA filter to prevent any particles that could be impacted by PCBs from entering the environment in the basement of the HS.

Langan will monitor background dust levels in the basement area during demolition/construction operations. The contractor will use fresh water as necessary for dust control within the plastic containment to maintain a reasonable work environment. Air quality control is discussed in greater detail in the Health and Safety Plan attached as Appendix A.

4.0 RESTORATION

Once the concrete has been removed to the underlying subgrade (gravel or compacted underlying soil) or to a maximum depth of 16 inches, the removal of material will cease and site restoration activities will occur. Site restoration will consist of the placement of steel reinforcing wire at the top of the subgrade, and then placement of concrete to restore the basement floor to the current grade. The concrete will be smoothed to blend into the existing floor grade for re-installation of the transformer by Carr & Duff once the concrete has sufficiently set to allow installation.

The new concrete will prevent any contact with underlying soils. Therefore, no post-excavation soil samples will be collected.

5.0 EQUIPMENT AND VEHICLE DECONTAMINATION

Tools, excavation equipment, loading equipment and the exteriors of drums containing removed concrete or project supplies that have the potential to be impacted will be checked prior to leaving the site for visible dust from the concrete removal program. If it is determined that waste drums or equipment have soil or dust on them they will be initially wiped down within the enclosure area with disposable heavy-duty paper towels wet with a solution of water and Simple Green to remove the visible dust. The equipment and/or drums will then be removed from the enclosure area to a temporary decontamination pad set up outside of the containment area for a more thorough wash down. The used paper towels and wash fluids will be containerized for future appropriate disposal.

The vehicle for transportation of impacted concrete will be staged on the exterior asphalt parking lot. An inspection of equipment will be conducted of all equipment to leaving the Facility. If any soil/dust from handling of the removed concrete is found on any equipment, it will initially wiped with disposable paper towels inside of the enclosure area. Upon exiting this area, the equipment will be placed in the temporary decon area and properly equipped personnel will spray and brush it as needed to remove any remaining dust and/or soil. Dust and soil removed from the equipment will be swept up and placed into the drums. Once the equipment has been brushed it will be rinsed in a wash station. The wash water will be contained and placed in a drum for removal and disposal. The wash station location will be designated by School District personnel. Note, the decontamination pad location may change based upon sequencing, transportation methods, and onsite and offsite traffic mitigation.

6.0 QUALITY ASSURANCE PLAN

6.1 Laboratory Quality Assurance

Until further notice, the analytical laboratory subcontracted for this project will be:

Eurofins
2425 New Holland Pike
Lancaster, Pennsylvania 17605
Telephone: (717) 656-2300
Contact: Mr. Joe Garzio

6.1.1 Sampling Program

Sampling for this program will be limited to the potential collection and analysis of concrete samples for waste characterization of the removed concrete.

6.1.2 Summary of Sampling Methodologies

Waste characterization samples of concrete for disposal, if required, will be collected as random grab samples from the upper layers of concrete (surface to a depth of one-inch) of the concrete being removed.

6.1.3 Quality Assurance/Quality Control Sample Collection Procedures

At the current time, no analytical samples are proposed other than waste characterization samples. Should any other sampling be conducted, QA samples would be collected and analyzed to document extraneous compound contribution from the laboratory and/or field environments and the repeatability of analytical results. QA samples would consist of the following:

- One duplicate sample would be collected, and
- One field blank would be collected and analyzed. The field blank for soil samples would be obtained by pouring laboratory distilled/deionized water through or over the sampling equipment, and collecting the rinsate in a laboratory cleaned sample jar.

6.1.4 Chain of Custody

The documentation of the procedures for collection of samples in the field allows for a complete record of those sampling procedures and for the accurate identification and tracking of samples in the field, during shipment, and at the laboratory. Additionally, the procedures track the chain of custody (COC) and accountability for the samples by providing legible and essential information. COC forms are initiated by the analytical laboratory when issuing sample containers. The COC is maintained through container acquisition, sampling, and submittal of samples to the analytical laboratory. Information recorded on the COC includes the date, time, sample identification number,

analysis requested and other relevant information. This COC procedure is maintained by the laboratory through final analysis and reporting of the results.

6.1.5 Laboratory Sample Storage Procedures

Upon delivery to the laboratory, sample containers are separated by laboratory personnel and placed into locked refrigerators. The refrigerators will be kept at a constant temperature of four degrees Centigrade (+/- 2 degrees).

6.1.6 Laboratory Data Deliverable Format

All laboratory data will be delivered first electronically followed-up in hardcopy format to Langan.

6.2 Project Quality Assurance

6.2.2 Field Data and Notes

Dedicated bound field notebooks will be kept for the concrete removal program. Entries will be made on a daily basis during the remedial action tasks and sampling events. Data entries will include project information regarding the conditions encountered at the site and documentation of all sampling procedures and relevant information.

Field notebook entries will generally include:

- the date and time (when appropriate) of the entry,
- the name of the individual making the entry,
- the date and time of arrivals and departures of subcontractor personnel, PADEP representatives, visitors, etc.
- equipment in operation
- approximate volumes of materials removed from the site
- the number and types of samples collected,
- sample identification number(s),
- field instrument calibrations performed,
- instrument readings,
- location of samples collected, and
- Detailed field observations.

Photographs will be taken for documentation purposes. Information regarding each photograph will be recorded, and subsequently labeled with the date, site location, and the subject in a final photographic log presented at the end of the project.

6.2.3 Equipment

Field equipment will be properly maintained and stored. The equipment used to generate field data will be routinely checked for proper operation and calibrated prior to each field event. Records of

equipment maintenance and calibration will be maintained by field personnel.

6.2.4 Procedures

The procedures and methodologies to be used on this project are designed to be in accordance with current federal and state guideline documents. Documentation of all field operations will be maintained within the dedicated site notebook and within the project file.

6.2.5 Peer Reviews

All documents that are prepared for submittal that contain data; evaluations, conclusions and/or recommendations are subject to internal peer review. This procedure entails the review of these documents by a peer professional or superior prior to documents being issued. This peer review is conducted to assure that the material being presented is responsive to project requirements, the regulatory agency and Wisler Pearlstine.

6.2.6 Documentation

Project related activities are detailed in the field and office documents, which are maintained within a systematic project filing system. Reporting requirements and deliverables are subject to a series of in-house QA/peer reviews conducted by appropriate technical staff, the Project Manager and/or Corporate Principal, prior to submission to Wisler Pearlstine.

6.2.7 Professionals

All technical personnel and field staff will be fully trained and well versed in environmental programs and field operations, including coordination of field activities, negotiation of site restrictions, sample acquisition and handling, client and contractor interaction and QA and health and safety procedures. All field personnel have completed the 40-hour Occupational Safety and Health Administration (OSHA) Health and Safety Training course and are supplemented by an annual eight-hour refresher course.

7.0 PROJECT ORGANIZATION

The project will be managed and conducted by Langan Engineering and Environmental Services, Inc. Subcontracted services and likely subcontractors will include:

- Removal of impacted concrete and site restoration- Clean Harbors
- Transportation and disposal of removed concrete and any IDW generated during the remedial action- Clean Harbors, and
- Analysis of Waste Characterization Samples- Eurofins

7.1 Project Coordination

Until further notice, all project coordination and management of the excavation and disposal of soils containing PCBs will be performed by personnel from Langan's Warrington, Pennsylvania office. The following personnel will coordinate and implement the remedial action:

Mr. Robert Ehlenberger – Project Manager for all RAW activities which have been or will be conducted at the Site in connection with the transformer area. Mr. Ehlenberger will provide senior review and oversight for all RAW activities.

Judd Herr/Jill Blumhardt- Field manager and site Safety Officer for the remedial activities dependent upon project start-up and availability. As such, Mr. Herr or Ms. Blumhardt will be responsible for overseeing the implementation of the work at the site.

7.2 Personnel

Langan technical personnel and field staff are fully trained and well versed in environmental programs and field operations, including coordination of field activities, negotiation of site restrictions, sample acquisition and handling, client and contractor interaction and QA and health and safety procedures. The personnel assigned to this remediation project have substantial experience in conducting environmental remediation programs on active plant sites and sites owned by third parties. All field personnel have completed the 40-hour Occupational Safety and Health Administration (OSHA) Health and Safety Training course and are supplemented by an annual eight-hour refresher course. Additionally, all personnel will be part of an approved Medical Monitoring Program. Field personnel are experienced in projects of this nature, and will be closely supervised by experienced project and task managers.

7.3 Field Operations

Until further notice, implementation and completion of field activities will be conducted by personnel from the following office:

Langan Engineering and Environmental Services, Inc.
2700 Kelly Road, Suite 200
Warrington, Pennsylvania 189761
Telephone: (215) 491-6500; Facsimile: (215) 491-6501

8.0 IMPLEMENTATION SCHEDULING AND REPORTING

The implementation schedule for the concrete removal work and off-site disposal program described in this RAW is dependent upon the completion of waste characterization sampling for disposal into approved disposal facilities. An anticipated start date is currently undefined.

9.0 HEALTH AND SAFETY

To ensure the health and safety of field personnel, all remedial activities at the site will be conducted in accordance with a project specific Health and Safety Plan (HASP). The HASP is provided with this RAW as an Attachment. The HASP addresses the specific health and safety issues associated with the excavation and off-site disposal of soils, concrete and water containing concentrations of PCBs ranging between 21.5 and 8,110 ppm. Any HASP provided by a subcontractor will conform with and be at least as protective of worker health and safety and the environment as the HASP provided by Langan.

The health and safety plan includes:

- Identification of proposed site operations,
- Hazard Analysis,
- Establishment of Site Control Procedures and Work Zones,
- Monitoring requirements,
- Action levels for selection of Personal Protective Levels,
- The use of, and requirements for personnel protective equipment,
- Decontamination policies and procedures for site workers and equipment,
- Training and medical requirements for Langan and subcontractor personnel,
- Emergency information including hospital route maps, emergency phone numbers and procedures to be followed in case of an emergency at the site including injuries, accidents and fires, and
- Policies for prevention of exposure to heat stress.

10.0 SUMMARY AND LIMITATIONS

This RAW provides a technically effective approach for the PCB impacted concrete within the former transformer area at Strawberry Mansion High School located in Philadelphia, Pennsylvania. This RAW has been developed in accordance with generally accepted environmental practices, (TSCA) Code of Federal Regulation (CFR) Title 40 Part 761. The RAW has been based on the data previously collected by AFW (September 14, 2015) and from information provided by the client.

TABLES

Table 1

Analytical Results for Wipe and Concrete Chip Samples
Strawberry Mansion High School *

Wipe Samples

Sample ID	Total PCBs
Pre-Wipe 1	ND
Pre-Wipe 2	0.257 J
Pre-Wipe 3	12.5
Pre-Wipe 4	0.527
Pre-Wipe 5	0.581
Post 1	0.828
Post 2	0.801
Post 3	29.4
Post 4	1.32
Post 5	0.392

All results in ug Abs
ND= Not Detected
J= Estimated Value- target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL)

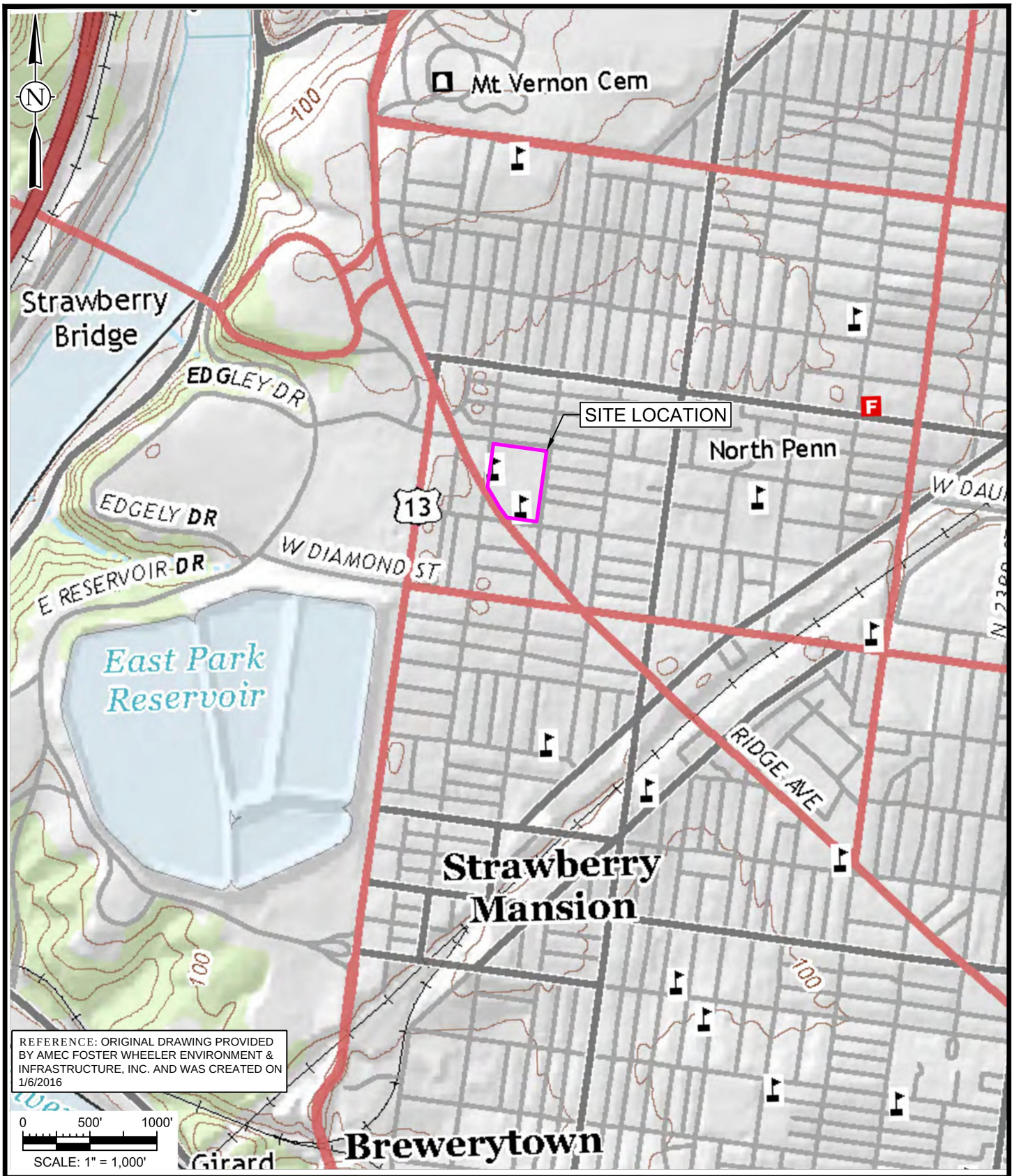
Concrete Chip Samples

Sample ID	Total PCBs
PCB 1A	604
PCB 1B	53.6
PCB 2A	3,970
PCB 2B	655
PCB 3A	3,600
PCB 3B	387
PCB 4A	1,520
PCB 4B	22.5
PCB 5A	8,110
PCB 5B	6,740

All results in mg/kg

* Samples collected by Amec Foster Wheeler on September 14, 2015.

FIGURES



REFERENCE: ORIGINAL DRAWING PROVIDED BY AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE, INC. AND WAS CREATED ON 1/6/2016

0 500' 1000'

SCALE: 1" = 1,000'

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Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
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Project

FORMER TRANSFORMER AREA STRAWBERRY MANSION HIGH SCHOOL

3133 RIDGE AVENUE
PHILADELPHIA
PHILADELPHIA COUNTY PA

Drawing Title

SITE LOCATION MAP

Project No. 200083101	Drawing No. 1
Date 5/13/2016	
Scale 1"=1000'	
Drawn By JCB / Checked By RGE	
Submission Date 5/13/2016	Sheet 1 of 1

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Langan International LLC
Collectively known as Langan

Project

FORMER TRANSFORMER AREA STRAWBERRY MANSION HIGH SCHOOL

3133 RIDGE AVENUE
PHILADELPHIA
PHILADELPHIA COUNTY PA

Drawing Title

SITE MAP

Project No. 200083101	Drawing No. 2
Date 5/13/2016	
Scale 1"=100'	
Drawn By JCB / Checked By RGE	
Submission Date 5/13/2016	Sheet 1 of 1

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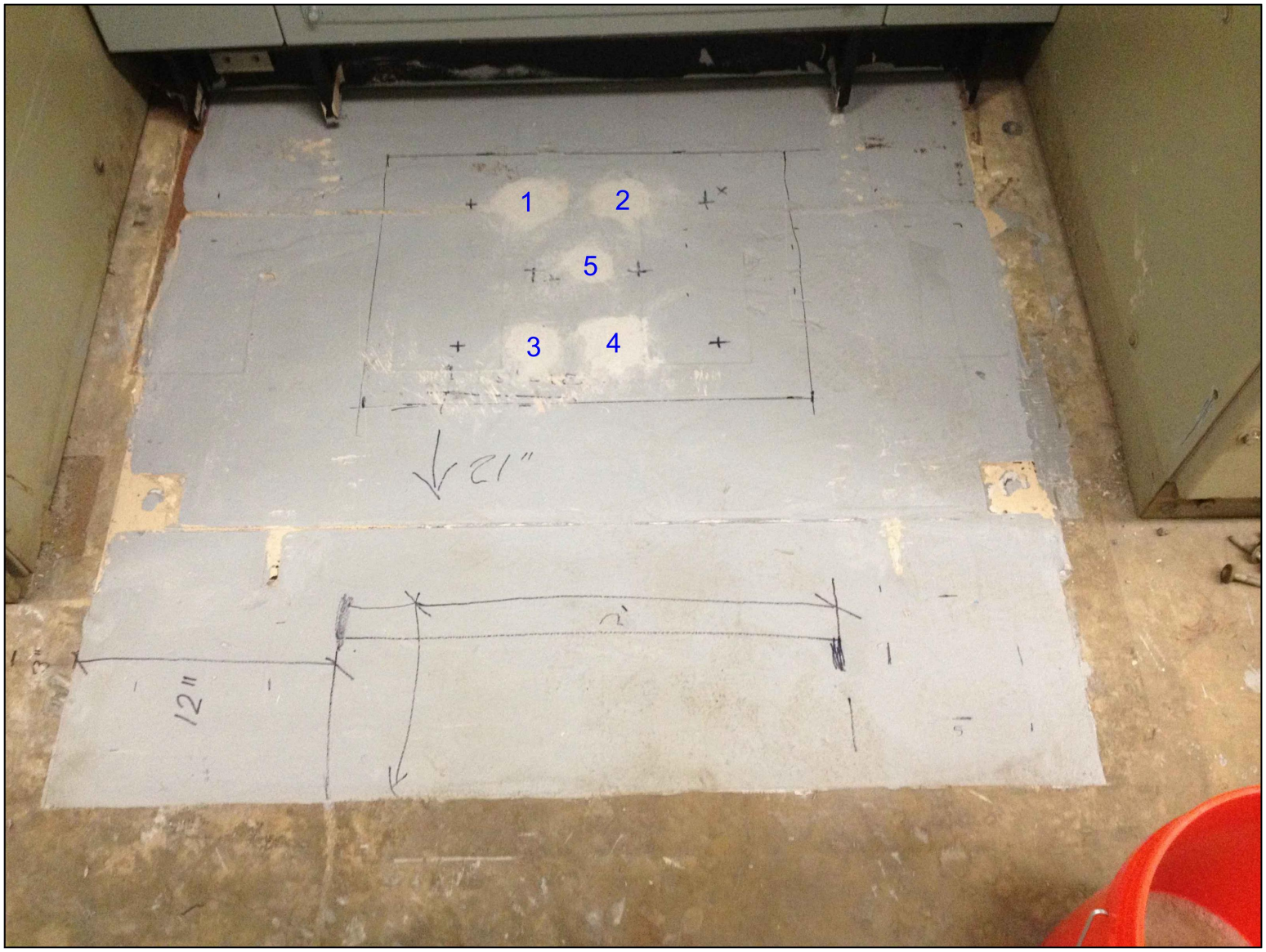
Filename: \\langan.com\data\DYL\data1\200083101\Cadd Data - 200083101\DWG\Titleblock_Update_051316.dwg Date: 5/13/2016 Time: 16:40 User: acostello Style Table: Langan.stb Layout: SITE MAP



LEGEND

1 CONCRETE SAMPLE LOCATION

REFERENCE: ORIGINAL DRAWING PROVIDED BY AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE, INC. AND WAS CREATED ON 1/6/2016

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Project

FORMER TRANSFORMER AREA STRAWBERRY MANSION HIGH SCHOOL

3133 RIDGE AVENUE
PHILADELPHIA
PHILADELPHIA COUNTY PA

Drawing Title

CONCRETE SAMPLE LOCATIONS

Project No. 200083101	Drawing No. 3
Date 5/13/2016	
Scale N/A	
Drawn By JCB / Checked By RGE	
Submission Date 5/13/2016	Sheet 1 of 1

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Filename: \\langan.com\data\DYL\data1\200083101\Cadd Data - 200083101\DWG\Titleblock_Update_051316.dwg Date: 5/13/2016 Time: 16:39 User: acostello Style Table: Langan.stb Layout: CONCRETE SAMPLING LOCATIONS

LEGEND

1 CONCRETE SAMPLE LOCATION

REFERENCE: ORIGINAL DRAWING PROVIDED BY AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE, INC. AND WAS CREATED ON 1/6/2016

LANGAN

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Langan Engineering and Environmental Services, Inc.
Langan CT, Inc.
Langan International LLC
Collectively known as Langan

Project

FORMER TRANSFORMER AREA STRAWBERRY MANSION HIGH SCHOOL

3133 RIDGE AVENUE
PHILADELPHIA
PHILADELPHIA COUNTY PA

Drawing Title

PRE AND POST WIPE SAMPLE LOCATIONS

Project No. 200083101	Drawing No. 4
Date 05/13/2016	
Scale N/A	
Drawn By JCB / Checked By RGE	
Submission Date 05/13/2016	Sheet 1 of 1

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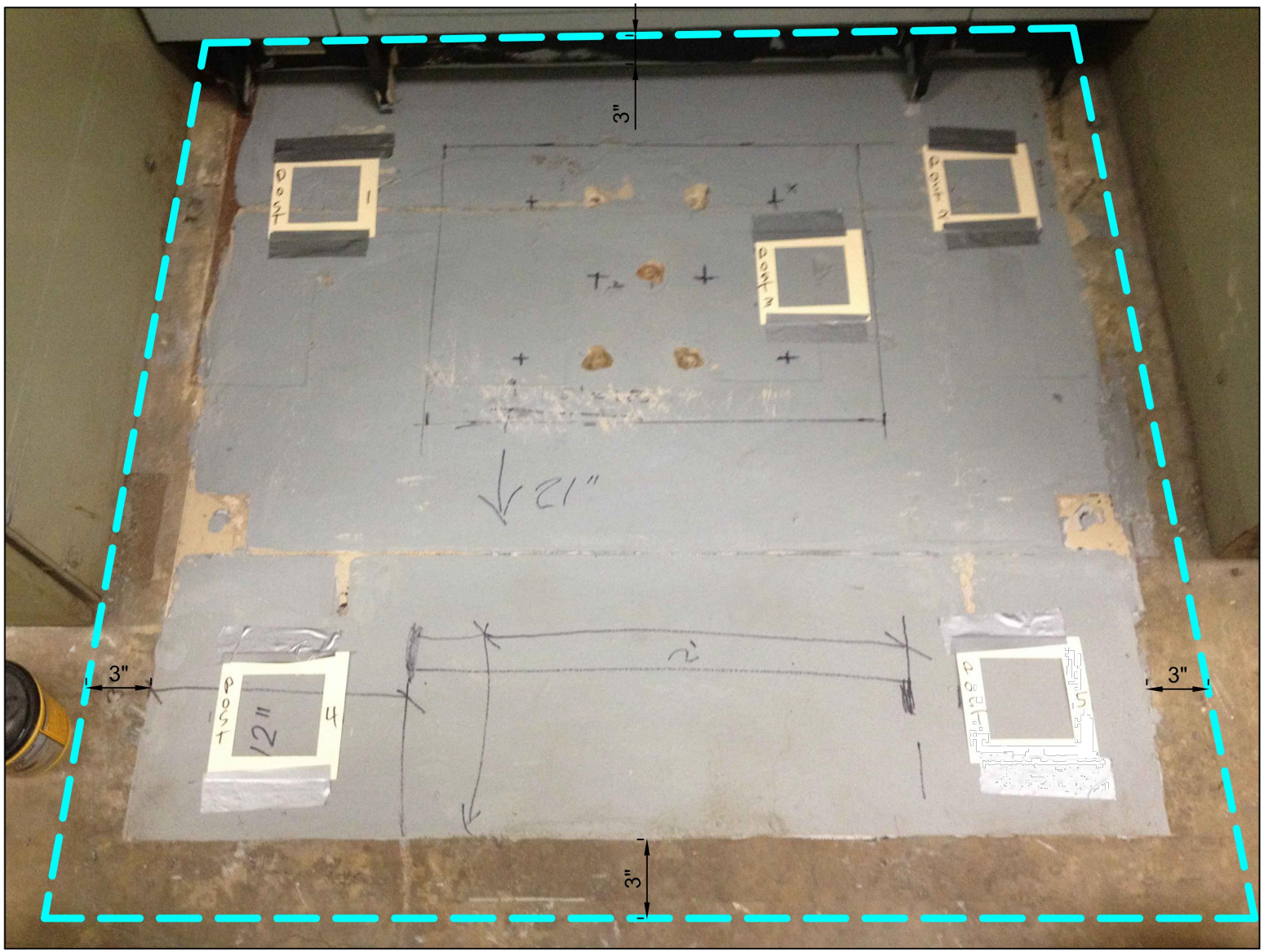

LEGEND

CONCRETE REMOVAL AREA

REFERENCE: ORIGINAL DRAWING PROVIDED BY AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE, INC. AND WAS CREATED ON 1/6/2016

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Project

FORMER TRANSFORMER AREA STRAWBERRY MANSION HIGH SCHOOL

3133 RIDGE AVENUE
PHILADELPHIA
PHILADELPHIA COUNTY PA

Drawing Title

CONCRETE REMOVAL AREA

Project No. 200083101	Drawing No. 5
Date 05/13/2016	
Scale N/A	
Drawn By JCB / Checked By RGE	
Submission Date 05/13/2016	Sheet 1 of 1

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APPENDIX A

HEALTH AND SAFETY PLAN

STRAWBERRY MANSION HIGH SCHOOL
HEALTH AND SAFETY PLAN
CONCRETE REMOVAL OVERSIGHT

STRAWBERRY MANSION HIGH SCHOOL
3133 Ridge Avenue
Philadelphia, Pennsylvania 19132

Prepared for:

WISLER PEARLSTINE, LLP
Blue Bell Executive Campus
460 Norristown Road, Suite 110
Blue Bell, PA 19422

Prepared by:

Langan Engineering and Environmental Services, Inc.
P.O. Box 1569
Doylestown, Pennsylvania 18901-0219

August 2016
200083101

LANGAN

STRAWBERRY MANSION HIGH SCHOOL
HEALTH AND SAFETY PLAN
CONCRETE REMOVAL OVERSIGHT

STRAWBERRY MANSION HIGH SCHOOL
3133 Ridge Avenue
Philadelphia, Pennsylvania 19132

Prepared by:

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Prepared by:

Bob Ehlenberger
Telephone: 215 491-6508

Approved By:

Anthony Moffa
Corporate H&S Manager
Telephone: 215-491-6545

August 2016
20008310

LANGAN

EMERGENCY CONTACT LIST

IN THE EVENT OF AN ON-SITE EMERGENCY WHILE WORKING ON THE SITE, IMMEDIATELY CONTACT THE FOLLOWING IN ORDER:

FIRE, POLICE, OR AMBULANCE: 911

LOCAL POLICE DEPARTMENT: 911 (22nd District)

LOCAL HOSPITAL: TEMPLE UNIVERSITY, (215) 707-2000

LANGAN H&S MANAGER: ANTHONY MOFFA, (215) 491-6545

LANGAN PROJECT MANAGER: ROBERT EHLENBERGER, (215) 491-6508

LANGAN SITE SAFETY AND HEALTH AND SAFETY OFFICER: Jill Blumhardt, (215) 491-6556

SITE CONTACT: Jill Blumhardt (215) 491-6556

I have read and understand the enclosed Health and Safety Plan.

Name	Signature	Date	Company

TABLE OF CONTENTS

PAGE NO.

1 INTRODUCTION 2-1

1.1 Purpose 2-1
1.2 Site Description, Understanding of Concrete Work, and Langan Scope of Services 2-1
1.2.1 Site Description 2-1
1.2.2 Langan Scope of Services 2-3

2 POTENTIAL SAFETY HAZARDS 2-1

2.1 Physical Hazards 2-1
2.2 Chemical Hazards 2-2
2.3 Safety Precautions 2-4

3 PERSONNEL REQUIREMENTS 3-1

3.1 Project Manager 3-1
3.2 Site Safety and Health Officer 3-1
3.3 Project Personnel 3-2

4 DESIGNATION OF THE LEVELS OF PROTECTION 4-1

4.1 Level C Personal Protection Equipment 4-1

5 DELINEATION OF THE WORK AREA 5-1

6 CONTROL PROCEDURES 6-1

6.1 Work Limitations 6-1
6.1.1 Personnel Decontamination 6-1
6.1.2 Equipment Decontamination 6-1
6.1.3 Personnel Decontamination – Level C 6-1
6.2 Disposal of Materials Generated During Field Work 6-2

7 TRAINING REQUIREMENTS FOR PERSONNEL 7-1

8 WEATHER RELATED HAZARDS 8-1

8.1 Heat Stress 8-1

9 MEDICAL MONITORING REQUIREMENTS 9-1

9.1 Health Monitoring 9-1
9.2 Site Specific Requirements 9-1

10 ON-SITE EMERGENCIES 10-1

10.1 Emergency Procedures 10-1
10.1.1 Emergency Situation 10-1
10.1.2 Project Telephone 10-1
10.1.3 Emergency Communications 10-1
10.1.4 Emergency Organizations 10-1
10.1.5 Emergency Evacuation 10-2
10.1.6 Emergency Equipment 10-2

10.2 Emergency Medical Care 10-2
10.2.1 Local Hospital 10-2
10.2.2 Medical Clinic 10-2
10.2.3 Emergency Drills 10-2
10.2.4 Accident/Incident Reporting 10-3

11 SUMMARY 11-31

ATTACHMENTS

Attachment A Incident Report Form

Attachment B Hospital Route Map

Attachment C Daily Tailgate Safety Meeting Form

1.0 INTRODUCTION

1.1 Purpose

The purpose of this document is to establish standard health and safety procedures for Langan employees overseeing their subcontractor; Clean Harbors, for the removal of concrete containing Polychlorinated Biphenyls (PCBs) located at 3133 Ridge Avenue, Philadelphia, Pennsylvania. Langan will monitor site conditions and provide oversight of the subcontractor during removal of concrete in the basement at the facility.

Site activities shall be performed in accordance with Langan safety and health policies and the following procedures: United States Environmental Protection (U.S. EPA) Toxic Substance Control Act (TSCA) regulation (40 CFR Part 761) subpart N; U.S. EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) (40 CFR 61, Subpart M); and applicable Occupational Safety and Health Administration Standards (OSHA Standards; 10 CFR Part 19, Part 20, Part 26 and Part 835; 29 CFR Part 1910 and Part 1926).

The levels of personal protection and the procedures specified in this plan are based on the best information available from site data. Therefore, these recommendations represent the minimum health and safety requirements to be observed by all personnel engaged in this project. Langan assumes that all concrete removal work within the enclosed concrete removal area will be conducted in Level "C" (or equivalent) protection level unless conditions indicate it is safe to reduce PPE. Field personnel will wear hard hats, safety glasses, coveralls, full-face respirators with P-100 cartridges and Langan approved safety shoes while working in the enclosed concrete removal area when dust is present. Ear plugs will be utilized by all field personnel in areas where noise exceeds 85dBA. In addition, vinyl or nitrile gloves will be worn by personnel handling contaminated materials. Unforeseeable site conditions or changes in scope of work may warrant a reassessment of protection levels and controls stated. All adjustments to the HASP must have prior approval by the Langan Site Safety & Health & Safety Officer (SSHO), the Langan Health & Safety Manager, and the Langan Project Manager (PM). Work in the support zone will be conducted in Level D personal protective equipment.

Due to past events or operational practices at the subject site, hazardous conditions may arise in the work area during the field operations. For this reason, on-site Langan personnel must read this document and must be knowledgeable of the appropriate health and safety measures needed to promote a safe working environment.

1.2 Site Description, Understanding of Concrete Work, and Langan Scope of Services

1.2.1 Site Description

The Site is Electrical Transformer Room in the basement of Strawberry Mansion High Scholl in Philadelphia, Pennsylvania.

Below is a summary of the project history:

- Carr & Duff was retained by the Philadelphia School District to perform "PCB Transformer Replacement at Strawberry Mansion High School."
- Carr & Duff retained PSC Environmental (PSC) to remove PCB-containing dielectric fluid from a transformer to be removed (Serial Number 3475168).
- Work was initiated on August 7, 2014. Prior to removal, the floor was covered with plastic in case any dielectric fluid leaked during transfer. The dielectric fluid was transferred to totes and ultimately to drums for off-site disposal by Clean Harbors, Inc.
- During the removal activities, several ounces of PCB-containing dielectric fluid leaked onto the plastic and through previously unidentified tears onto the concrete below.
- Mr. Scott Rice of the United States Environmental Protection Agency (USEPA) was notified of the spill by Keating Environmental Management (KEM) (consultant for the Philadelphia School District). It is Langan's understanding that all coordination with the USEPA was conducted by KEM.
- It was reported that the spill was wiped up with sorbent pads and then a double wash was conducted with a solution of Simple Green by PSC. The area (approximately 1.5 by 2 feet in size) was then encapsulated with gray epoxy encapsulant. No wipe testing was conducted prior to placement of the encapsulant.
- On August 8, 2015, a second layer of epoxy (tan in color) was applied over the initial layer of encapsulant by PSC.

In consultation with Mr. Rice of the USEPA, it was identified that the appropriate next step was to prepare a focused sampling plan for collection of chip samples in the area of the spill to ascertain if the cleanup conducted by PSC effectively removed any PCB-containing fluids and avoided an impact to the underlying concrete. If the chip samples did not detect concentrations of PCBs in excess of the project cleanup standard (1 ppm), Mr. Rice agreed that it should not be necessary to maintain encapsulation (no O&M moving forward) or to remediate the area further (removal of concrete).

Mr. Robert Ehlenberger, at the time with Amec Foster Wheeler (AFW), conducted a preliminary visual assessment and collected samples of concrete within the area on September 14, 2015. The purpose of this sampling event was to characterize in-place and concrete structures prior to remedial action, more specifically, excavation of impacted concrete at the Site. The spill area was reported to be approximately 1.5 to 2 feet in size. The encapsulated area is approximately three feet by three feet and the exact area of the spill was not documented in any correspondence was available. Therefore, representatives of AFW collected samples at five locations on September within the encapsulated area. The five sampling locations were spaced within the encapsulated area to assure that the former spill area was adequately sampled.

Results of the analyses for concrete along with pre and post wipe samples are summarized in Table 1 of the Remedial Action Workplan (RAW). Laboratory Certificates are available as Appendix A in the RAW. As is indicated in the Table 1, all 10 concrete samples (PCB-1A

through PCB-5B) have total PCB concentrations above 1ppm, with concentrations ranging between 22 and 8,100 parts per million (ppm).

1.2.2 Langan Scope of Services

The scope of services applicable to this HASP includes the following:

- General oversight of contractors during the concrete removal. Langan will have Stop Work Authority over employees and subcontractors if unsafe conditions are observed.
- Langan will require that Tyvek® coveralls, gloves and rubber booties are worn by all subcontractors performing concrete removal in addition to steel toed shoes and safety glasses. Hard hats are to be worn at all times. The work zone will be encapsulated with 6-millimeter plastic (visqueen). Visqueen will be laid on the floor around access/egress to the work zone in which three distinct zones will be marked. The first zone will be the exclusion area which consists of the enclosed concrete removal area. The second zone will be the decontamination zone where crews remove their booties and Tyvek® and where there will be a wash zone where water will be placed in a series of bins/buckets for washing hands; the last zone will be the support zone and will be located farthest from the work zone. Used Tyvek® and other PPE will be collected into contractor bags and ultimately placed in a drum for disposal. Disposal of this drum will be managed by Clean Harbors. Hand tools used by Clean Harbors are to be decontaminated when removed from the work area. Hand tools can be hand wiped with a solution of Simple Green. Rags used for decontamination are to be containerized in a drum for later disposal by Clean Harbors. Hand cleaning of tools is to be conducted in the decontamination zone.
- During removal of the concrete by Clean Harbors, Langan will monitor for visible dust in the support zone. If visible dust is present in the decontamination or support zones then additional wetting of the concrete being removed will performed, and/or the negative pressure within the concrete enclosure will be increased.
- Langan will oversee that waste is placed in appropriate containers and that appropriate labels are placed on each container in preparation for shipment. Manifests will be signed by representatives of the School District as generator of the wastes to be disposed of prior to waste being transported offsite following proper characterization and profiling.

In addition to the above Langan will collect photographic documentation of the work conducted throughout the project.

2 POTENTIAL SAFETY HAZARDS

In order to promote the safety and well-being of personnel conducting work at the project site, all site personnel shall be informed as to the potential hazards that may be encountered there. These hazards take two forms; the risk of physical injury associated with remedial investigation activities, and the risk of chemical exposure that could potentially result from these activities. The Site will be periodically evaluated to determine if the degree of risk has changed, based on information gathered during the assessment.

2.1 Physical Hazards

Physical hazards associated with the concrete removal activities may include hazardous noise.

Safe work practices include the following:

Hazardous Noise:

During activities at the site allowable noise level of 85 decibels A-weighted (dBA) may be exceeded. Therefore:

- All workers shall wear hearing protection whenever they are working in a high noise area.
- If measurements have not been made, or there is not an accurate way to measure the sound level, then ear protection shall be worn if workers have to shout to communicate when they are three feet apart or less.
- Ear plugs shall be worn by all personnel within twenty-five (25) feet of operating equipment, and at any other locations where there is the potential to be exposed to hazardous noise.

Safe Driving Enroute to and Returning from Project Site:

- Know where you are going.
- Conduct vehicle walk-around; check tire pressure, tire tread and vehicle fluids. Report unsafe conditions to your supervisor and/or unit manager and document time and date of notification.
- Drive defensively, observe speed limits and obey all traffic laws.
- Be aware of all traffic patterns and keep a safe distance from traffic areas during site assessments.
- Always use seat belts.
- Do not use your cell phone while driving.
- Carry your driver's license and a Langan business card.
- Be extra cautious in inclement weather and while driving through road construction zones.
- If you are in an accident:

- Call 911, if medical assistance is needed.
- Move the vehicle out of traffic, if possible.
- Contact the local police department.
- Contact emergency service, if needed.
- Exchange contact and insurance information if another driver was involved.
- Contact your supervisor, and Tony Moffa ASAP.
- Complete a Vehicle Incident Report and other appropriate forms ASAP.

Accident reporting should be in accordance with Langan Incident reporting procedures.A blank incident reporting form and a near miss reporting form are included as **Attachment A**.

Slips, Trips, and Falls

- Be aware of your surroundings.
- Follow appropriate local regulations and site safety requirements.
- Always wear personal protective equipment (PPE): steel-toed boots, hardhat, safety glasses, and reflective safety vests.
- If unsure of PPE requirements, contact Safety Officer or Corporate Safety Department.

Other Hazard Prevention

- Ask about current site hazards and unsafe site conditions and avoid those areas (i.e., blasting, heavy equipment traffic, trenches, excessive mud and water etc.).
- Wear your required PPE and consider including sunscreen, hats, sunglasses, long pants, insect repellant, etc.
- Be careful on uneven ground surfaces and on slopes.
- Do not enter any area that you feel is unsafe (i.e. trenches, manholes, culverts and confined spaces).

The project will occur in the basement of the facility. Barricades or warning tape will be used to block the area around the work zone.

2.2 Chemical Hazards

Available data for the Site suggests that PCB dust may be generated during wet saw cutting activities. Langan personnel must be aware that these or similar substances may be encountered on-site, and be prepared to modify the work plan if potentially hazardous conditions are encountered.

The minimum PPE requirements for PCB dust are as follows:

- Tyvek
- Rubber Booties
- ANSI Z89.1 hard hat

- ANSI Z87.1 safety glasses
- National Institute for Occupational Safety and Health (NIOSH)/Mine Safety and Health Administration (MSHA) approved air purifying respirator with P-100 cartridges
- Vinyl or nitrile gloves

While materials are being removed, Langan personnel will be look for the presence of visible dust outside of the enclosure area and will implement procedures to eliminate the fugitive dust (wetting of concrete and increasing negative pressure.)

Table 1. Possible Constituents of Concern

Constituent	PEL/REL	IDLH	Relevant Possible Exposure Pathways	Dermal Health Effects	Inhalation Health Effects	First Aid
PCB	TWA 1 mg/m3 - TWA 0.001 mg/m3	5 mg/m3	Inhalation Skin Absorption Ingestion Skin and/or eye contact	Eye irritation, Chloracne, liver damage, reproductive effects	None listed	**Eye: irrigate immediately** **Skin: wash with soap immediately** **Inhalation: provide respiratory support** **Ingestion: seek medical attention immediately**

[a]PEL = OSHA Permissible Exposure Limit; represents the maximum allowable 8-hr. time weighted average (TWA) exposure concentration.
(b) = ingestion should not be a relevant exposure pathway.
TLV = ACGIH Threshold Limit Value; represents the maximum recommended 8-hr. TWA exposure concentration.
IDLH = Immediately Dangerous to Life and Health; represents the concentration at which one could be exposed for 30 minutes without experiencing escape impairing or irreversible health effects.
REL = NIOSH Recommended Exposure Limit, based on a 10-hour TWA exposure.

To avoid exposure to chemicals, the procedures outlined below should be followed:

- Precautions should be taken to avoid exposure of other individuals to the chemicals,

- Workers with the potential to be exposed to PCB containing dust are to wear Level C PPE, including but not limited to nitrile gloves, safety glasses, hard hat, Tyvek suits over work shirt and full-length cotton pants and a NIOSH and MSHA approved air purifying respirator with P-100 cartridge at all times during work. Caution should also be taken to avoid contact with skin and eyes.
- If the contaminant is on an individual's clothing, first rinse the clothing, if possible, and remove the contaminated garments, if it is safe to do so,
- If the chemical has contacted the skin, wash the skin with copious amounts of soap and water,
- In case of eye contact, an emergency eye wash should be used. Eye-wash stations shall be brought onsite by Clean Harbors. Eyes should be washed for at least fifteen (15) minutes, lifting the lower and upper lids occasionally,
- All chemical exposure incidents must be reported (in writing) to the Project Manager.

Chemicals brought onto the Site by Langan or subcontractors are to have an associated Material Safety Data Sheets (MSDS) and are to be maintained with the HASP onsite.

2.3 Safety Precautions

In order to reduce the risk to health and safety of workers throughout the entire Site, the following precautions will be observed:

- Keep any potentially contaminated media away from eyes, skin, nose, and mouth.
- Eating, drinking, chewing gum or tobacco, or any practices that increase the probability of hand-to-mouth transfer and ingestion of contaminants are prohibited in the work area.
- Use soap and water to remove any contaminant that contacts the skin. Do not use gasoline or similar solvents to remove oil and grease from the skin. Wash exposed skin promptly.
- Hands should be thoroughly washed upon leaving the work area.
- Properly dispose of rags, disposable gloves, etc. in appropriate containers.
- Keep work areas clean and well ventilated.
- Avoid contact with contaminated or suspected contaminated surfaces. Whenever possible, do not walk through puddles, leachate, or discolored surfaces. Do not clean, set or place equipment on drums, containers, or on soil suspected of containing contamination.
- Medication and alcohol can exacerbate the effects of exposure to toxic chemicals. Prescription drugs should not be taken by personnel when the potential for absorption, inhalation, or ingestion of toxic substances exists, unless specifically approved by a qualified physician. Intake of alcoholic beverages is prohibited during field operations.
- All on-site personnel must be trained on the appropriate personal protective equipment to be worn, safety procedures to be followed, and emergency procedures and

communications to be practiced pursuant to United States Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120.

- As required, respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
- All on-site personnel are advised to use their senses to help alert themselves to potentially dangerous situations which they should avoid (e.g., presence of strong and irritating or nauseating odors).
- All personnel should practice operations which may be unfamiliar to them prior to performing the actual procedure in the field.
- On-site field personnel shall be familiar with the physical characteristics of the Site, including:
    - wind direction in relation to the work area;
    - accessibility to associates, equipment, and vehicles;
    - site access;
    - nearest water sources; and,
    - location of the nearest telephone or communication device.

Additionally, before beginning work, the area will be checked for on-site hazards including overhead lines, aboveground obstructions, etc. One person will act as spotter when equipment is moved to watch for traffic, pedestrians, and aboveground and overhead obstructions. If only one person is present on-site, the employee will walk around the vehicle to check for obstructions or hazards prior to putting the vehicle in motion. For vehicles that do not contain backup alarms honk the horn three consecutive times prior to backing up.

3 PERSONNEL REQUIREMENTS

Mr. Tony Moffa serves as Langan's Health, & Safety (H&S) Manager. As such, he is responsible for all record keeping associated with appropriate health and safety training, general certifications and medical clearance documentation for Langan's field personnel. It will be the responsibility of the Project Manager, with the assistance of Mr. Moffa, to oversee and carry out activities in accordance with the Langan H&S Program and the Site Specific HASP. Other Personnel requirements are defined below.

3.1 Project Manager

The Project Manager, to whom on-site health hazards or emergencies shall be reported, is Langan's Robert Ehlenberger.

3.2 Site Safety and Health Officer

The overall SSHO is Ms. Jill Blumhardt. Ms. Blumhardt shall hold daily tailgate meetings with the contractor crews. Ms. Blumhardt will implement the safety and health protection procedures outlined in this plan. Ms. Blumhardt will have primary responsibility for:

- Assuring that on-site personnel have read the Site HASP and are aware of the potential hazards of the site and the proper procedures of handling those hazards should they occur, including the health and safety provisions and standards in this plan;
- Denying access to active work areas to unauthorized personnel;
- Assuring that the proper personal protection equipment is available and utilized appropriately by on-site personnel;
- Monitoring the performance of on-site personnel to determine if the health and safety procedures are being performed, in addition to providing support to correct any activities that do not comply with the HASP;
- Coordinating safety procedures with the local authorities, if required;
- Advising the Project Manager on health and safety matters relative to the site;
- Posting a copy of the HASP at the site, along with emergency telephone numbers and directions to the nearest telephone;
- Calibrating monitoring equipment and recording results on an instrument calibration log, as required;
- Assuring that on-site personnel observe the appropriate work zones and decontamination procedures;
- Leading daily safety "tailgate" briefing meetings prior to commencement of daily work activities, and;
- Reporting any safety violations to the Program Manager.

In addition to these responsibilities, the SSHO shall be responsible for making modifications to the HASP during the course of the project, based upon the results of the site monitoring program.

3.3 Project Personnel

All project personnel (Langan and subcontractor) must have completed HAZWOPER training and are responsible for:

- Being informed of the guidelines outlined within the HASP, especially any aspects that they do not understand;
- Taking reasonable precautions to prevent injury to themselves and to their fellow employees; being alert to potentially harmful situations;
- Performing only those tasks that they believe they can do safely and immediately reporting any accidents and/or unsafe conditions to the SSHO;
- Notifying the SSHO of any special medical conditions (i.e., allergies, pregnancy, diabetes) and, if necessary, to alert on-site personnel of any such conditions;
- Preventing spills to the extent possible. In the event that a spillage occurs, contain the spillage and clean up the spill using clean up procedures as directed by the SSHO;
- Practicing good housekeeping by keeping the Site orderly and limiting potentially harmful situations, and;
- Reporting injuries.

On-site personnel are responsible for implementing this HASP in order to promote a safe work environment.

4 DESIGNATION OF THE LEVELS OF PROTECTION

Level C personal protective equipment will be utilized for workers within work areas. Level C protection shall include half-face air purifying respirators fitted with P-100 cartridges.

4.1 Level C Personal Protection Equipment

Level C protection is required due to the risk of PCB inhalation and contact.

Level C Equipment

Level C requires the following:

- Hard hat; ANSI Z89 nonmetallic hard hat.
- Safety glasses; ANSI Z87 glasses. No contact lenses will be allowed. Prescription glasses must meet ANSI Z87 or be fitted with approved "fit over" safety glasses.
- Safety shoes; leather or chemically resistant, steel toe and shank.
- Disposable rubber boot covers.
- Hearing protection; while on-site personnel shall have hearing protection available. Use hearing protection when noise levels exceed 85 dBA.
- Respirator; half-face, air purifying, with P-100 cartridges. Respirator must meet NIOSH/MSHA standards.
- Clothing; outer garments, one or two piece, chemical resistant fabric (i.e. Tyvek®).
- Gloves; vinyl or nitrile.

Level D Equipment

- Hard hat; ANSI Z89 nonmetallic hard hat.
- Safety glasses; ANSI Z87 glasses. No contact lenses will be allowed. Prescription glasses must meet ANSI Z87 or be fitted with approved "fit over" safety glasses.
- Safety shoes; leather or chemically resistant, steel toe and shank.
- Hearing protection; while on-site personnel shall have hearing protection available. Use hearing protection when noise levels exceed 85 dBA.
- Long-sleeved work shirt and long pants.

5 DELINEATION OF THE WORK AREA

The exclusion area will consist of the enclosed areas surrounding the concrete removal area and an additional area for support. The decontamination area will be just outside of the exclusion area and the support area will encompass the open area of the transformer room at the base on the entry stairs. Signage will be put up to designate the transformer room as the overall work area in which the requirements of this Health and Safety Plan will be in effect during the course of the work.

6 CONTROL PROCEDURES

6.1 Work Limitations

Signage will be used to delineate the Work Area. This will serve to protect unauthorized personnel from potential exposure to chemical constituents or excessive volume.

The work will be conducted on the weekend, or on school holidays to avoid disruption to school activities.

Along with the control procedures the following safety requirements shall be observed:

- The work area is to be restricted to authorized personnel and their equipment. Personnel and equipment should be kept to a minimum, consistent with effective site operations. The work area should be barricaded or roped off, to prevent access by unauthorized personnel;

6.1.1 Personnel Decontamination

When exiting the work area, all personnel shall follow the decontamination procedures outlined herein as applicable.

6.1.2 Equipment Decontamination

The SSHO shall be responsible to monitor that equipment is properly decontaminated and checked prior to being removed off-site. Reasonable efforts should be made to remove contamination by wiping, brushing or washing surfaces.

At a minimum, visual indication of contamination shall be removed and no organic vapors detectable above background should remain. Equipment should be reasonably clean, dry, unstained, and free from deposits, encrustations, or discoloration.

6.1.3 Personnel Decontamination – Level C

Plastic sheeting will be laid down in the decontamination area to protect the underlying concrete floor. Level C decontamination begins with outer gloves being removed and property disposed of. The inner gloves will be worn to keep contaminants off of the hands of site personnel during the decon process. The outer Tyvek gloves and any taping, and the Tyvek will be removed and placed in a drum placed just outside of the encapsulated area. The respirator face piece shall be removed and the face piece exterior and interior thoroughly cleaned and rinsed while wearing the inner gloves. After all protective equipment has been removed, personnel will remove the inner gloves, wash hands and exit the decontamination area.

Decon protocols:

1. Worker steps out of the encapsulated area, stepping onto plastic sheeting.
2. Worker carefully removes outer gloves and tape, then Tyvek by rolling it down so that material on the outside of the suit does not contact skin or clothing and is retained within the suit. Outer disposable booties should be removed just prior to stepping into the second half of the decon zone.

3. Worker enters the second half of the decontamination zone. Here they remove their respirator using their inner gloves, remove the inner gloves and wash their hands to remove any constituents. Disposable cleaning wipes may be substituted for soap and water. Following hand cleaning worker can remove their respirator (if respirators are used).
4. Worker enters the clean zone.

6.2 Disposal of Materials Generated During Field Work

Contaminated materials may be generated while conducting site environmental activities. Langan personnel shall be aware of the proper means of disposal for such materials. Nitrile gloves should be taken off so that the glove is turned inside out to contain any possible contaminants. Gloves will then be disposed of in a waste disposal can.

Tools, excavation equipment, loading equipment and the exteriors of drums containing removed concrete or project supplies that have the potential to be impacted will be checked prior to leaving the site for visible dust from the concrete removal program. If it is determined that waste drums or equipment have soil or dust on them they will be initially wiped down within the enclosure area with disposable heavy-duty paper towels wet with a solution of water and Simple Green to remove the visible dust. The equipment and/or drums will then be removed from the enclosure area to a temporary decontamination pad set up outside of the containment area for a more thorough wash down. The used paper towels and wash fluids will be containerized for future appropriate disposal.

Used Tyvek® booties, gloves and other PPE used during the work are to be removed and disposed of in drums. Disposal of this drum will be managed by Clean Harbors. Hand tools used by Clean Harbors are to be decontaminated when removed from the work area. Hand tools can be hand wiped with Simple Green.

7 TRAINING REQUIREMENTS FOR PERSONNEL

On-site personnel shall have successfully attended and completed the initial OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training and the associated HAZWOPER 8-Hour annual refresher training (where applicable). The Site Safety & Health Officer responsible for this project will be the field geologist/engineer assigned to the remedial investigation.

On-site personnel shall also be familiar with the location and use of any emergency equipment (i.e. fire extinguisher, etc.) required at the project site. Personnel will also be familiar with any special procedures (i.e. ladder safety, etc.) that will be performed during the concrete removal work.

8 WEATHER RELATED HAZARDS

The work will be conducted within the basement transformer room of Strawberry Mansion HS. Therefore, potential issues with cold stress are not a concern and are not addressed herein. Heat stress could be a concern based on the enclosed nature of the work area and climatic conditions on the days the project is being conducted.

8.1 Heat Stress

- Check the weather reports prior to leaving the office.
- Wear appropriate protective clothing.
- Reschedule project assessments when necessary due to extreme weather.
- Drink plenty of water.
- Get out of the heat if you feel lightheaded, dizzy, or sick.

9 MEDICAL MONITORING REQUIREMENTS

9.1 Health Monitoring

Langan provides annual medical surveillance programs for their employees who have risk of potential exposure to contaminants. Langan personnel on-site during the subject project shall be active in Langan's medical surveillance program. This program is based on recommendations within the NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities and includes the following areas of concern:

- Occupational History
- Medical History
- Physical Examination
- Audiometry
- Chest X-Ray
- Blood and Urine Screening
- Pulmonary Function Test

9.2 Site Specific Requirements

Due to the nature of the subject site, no specific medical monitoring of personnel will be required while the assessment is being conducted. However, if a worker suffers a chemical exposure, or experiences symptoms indicating that such an exposure may have occurred, then that worker will be checked by a physician to determine if he/she has suffered any adverse health effects as a result of this exposure.

10 ON-SITE EMERGENCIES

10.1 Emergency Procedures

10.1.1 Emergency Situation

Site activities present a potential risk to on-site personnel. During routine operations, a risk is minimized by establishing good work practices, staying alert, and using proper personal protective equipment. Unpredictable events such as physical injury, chemical exposure, or fires may occur and must be anticipated. If an emergency occurs these procedures should be followed:

- In the event that any on-site personnel experiences adverse effects or symptoms of exposure while on the scene, Langan personnel shall immediately halt work and act according to the instructions provided by the SSHO;
- The discovery of a condition that would suggest the existence of a situation more hazardous than anticipated, should result in the evacuation of all personnel, followed by re-evaluation of the hazard and the level of personal protection required;
- In the event of an incident, the Program Manager and the SSHO shall prepare a memorandum detailing all aspects of the incident. Follow-up action must be taken to correct the situation that caused the incident.

10.1.2 Project Telephone

The nearest telephone to the work area will be located by the SSHO who will also carry a mobile phone at all times.

10.1.3 Emergency Communications

The "buddy system" will be enforced for field activities involving potential exposure to hazardous or toxic materials, and within the work zone. Each person will observe their partner for symptoms of chemical over exposures or heat stress and provide emergency assistance when warranted.

Emergency Signals

The following emergency hand signals shall be used:

- Grasping throat with hand- emergency - help me
- Thumbs up- ok; understood
- Grasping buddy's wrist - leave site now.

10.1.4 Emergency Organizations

A list of the organizations whose assistance might be required to deal with an on-site emergency is provided, along with their address, telephone number, and a point of contact (if relevant).

- Temple University Hospital - (215) 469-5000
- Fire Department – (215) 686-1300
- Police Department – (215) 686-3220 – 22nd District
- Langan Health & Safety Manager, Anthony Moffa - (215) 491-6545
- Langan Project Manager, Robert Ehlenberger - (215) 852-4625

It may be necessary to coordinate activities with these organizations prior to beginning project operations.

10.1.5 Emergency Evacuation

If an emergency arises which requires personnel to evacuate the project site, personnel shall leave in an upwind direction to a point where safe deliberation can be made of how to respond to the emergency situation.

10.1.6 Emergency Equipment

A 20-pound fire extinguisher shall be readily available at the facility capable of extinguishing class A-B-C fires. On-site personnel shall be familiar with its proper use.

A first-aid kit will also be available on-site, in the event a worker suffers a physical injury. On-site personnel certified in first aid can administer treatment to an injured worker.

10.2 Emergency Medical Care

10.2.1 Local Hospital

The closest hospital is Temple University Hospital located off of North Broad Street in Philadelphia, Pennsylvania. The telephone number for the hospital is (412) 469-5000. This hospital is located within approximately 2.6 miles of the project site with a travel time of approximately 11 minutes. **Please note that the hospital directions and map are also included at the very back of this Health & Safety Plan (HASP) for quick access during an emergency (Attachment B).**

10.2.2 Medical Clinic

Injuries that are not serious will be treated at the nearest Advanced Urgent Care. The closest Advanced Urgent Center is Advanced Urgent Care located at 5058 City Avenue, Philadelphia, PA 19131; phone number (855) 698-7346.

10.2.3 Emergency Drills

The SSHO may hold periodic emergency drills, to train on-site personnel in the correct procedures to follow in the event of an emergency. Special emphasis will be placed on the proper response to a fire or chemical exposure injury.

10.2.4 Accident/Incident Reporting

Maintaining the health and safety of our workforce is a responsibility we take seriously. The following incident reporting procedures are critical in ensuring that if an incident does occur we will properly manage it. An Incident Report Form is included in **Attachment A**.

Non-Emergency Incident

Before seeking medical attention other than local first aid, report the situation to your immediate supervisor and H&S Manager (all incidents with the clear starting event should be reported within one hour of occurrence)

Emergency Incident

Provide emergency first-aid. Supervisor on duty must immediately call 911 or local emergency number; no employee may respond to outside queries without prior authorization.

11 SUMMARY

Langan personnel involved with the scope of work for the subject project shall be familiar with the possible hazards involved, the safety procedures, and other inherent factors outlined in this plan. Prior to the commencement of work on the project, the Project Manager and the SSHO should discuss general procedures to be implemented, addressing local safety and health requirements and any site-specific conditions that may require additional precautions. Additionally on a daily basis, a Tailgate Safety Meeting is to be conducted. A Daily Tailgate Form is attached as **Attachment C**.

ATTACHMENT A

INCIDENT REPORTING FORM

APPENDIX G

INCIDENT REPORT

LANGAN EMPLOYEE EXPOSURE/INJURY INCIDENT REPORT
(Submit a Separate Report for Each Employee and/or Incident)

Date: _____

Employee Name:_____ Employee No:_____

Sex: M _____ F _____ Age: _____

Region: _____ Location:_____

Project: _____ Project No: _____

Incident:_____

Type: Possible Exposure _____ Exposure _____ Physical Injury _____

Location: _____

Date of Incident: _____ Time of Incident: _____

Date of Report Incident: _____

Person(s) to Whom Incident was Reported: _____

Weather Conditions During Incident: Temperature _____ Humidity _____

Wind Speed and Direction: _____ Cloud Cover: _____

Clear: _____ Precipitation: _____

Materials Potentially Encountered: _____

Chemical (give name of description - liquid, solid, gas, vapor, fume, mist):

_____

_____

Radiological:_____

Other: _____

Nature of the Exposure/Injury: (State the nature of the exposure/injury in detail and list the parts of the body affected. Attach extra sheets if necessary).

_____

_____

_____

_____

_____

Did you receive medical care? Yes _____ No _____ If so, when _____

Where? On-Site _____ Off-Site _____

By Whom: Name of Paramedic: _____

Name of Physician: _____

Other: _____

If Off-Site, name facility (hospital, clinic, etc):_____

_____

Length of stay at the facility?_____

Was the Site Safety Officer contacted? Yes _____ No _____ When?_____

Was the Corporate Health and Safety Officer contacted? Yes _____ No _____

If so, who was the contact?_____

Did the exposure/injury result in permanent disability? Yes _____ No _____

If so, explain:_____

_____

_____

_____

Has the employee returned to work? Yes _____ No _____

List the names of other persons affected during this incident:

_____

_____

_____

_____

List the names of persons who witnessed the exposure/injury incident:

_____

_____

_____

_____

_____

_____

_____

Possible cause of the exposure/injury incident: _____

_____

_____

_____

_____

_____

What was the name and title of the field team leader or immediate supervisor at the site of the incident?

_____

Was the operation being conducted under an established Health and Safety Plan?

Yes _____ No _____ If yes, attach a copy. If no, explain

_____

_____

_____

_____

Describe protective equipment and clothing used by the employee:

_____

_____

_____

_____

_____

_____

Did any limitations in safety equipment or protective clothing contribute to or affect exposure? If so, explain:

_____

_____

What was the employee doing when the exposure/injury occurred? (Describe briefly as Site Reconnaissance, Site Characterization, or Sampling, etc.):

_____

_____

_____

_____

_____

_____

Where exactly on site or off site did the exposure/injury occur?

_____

_____

_____

_____

_____

How did the exposure/injury occur? (Describe fully what factors led up to and/or contributed to the incident):

_____

_____

_____

_____

_____

Name of person(s) initiating report, job title, phone number:

_____

_____

_____

_____

_____ _____

Employee Signature Date

_____ _____

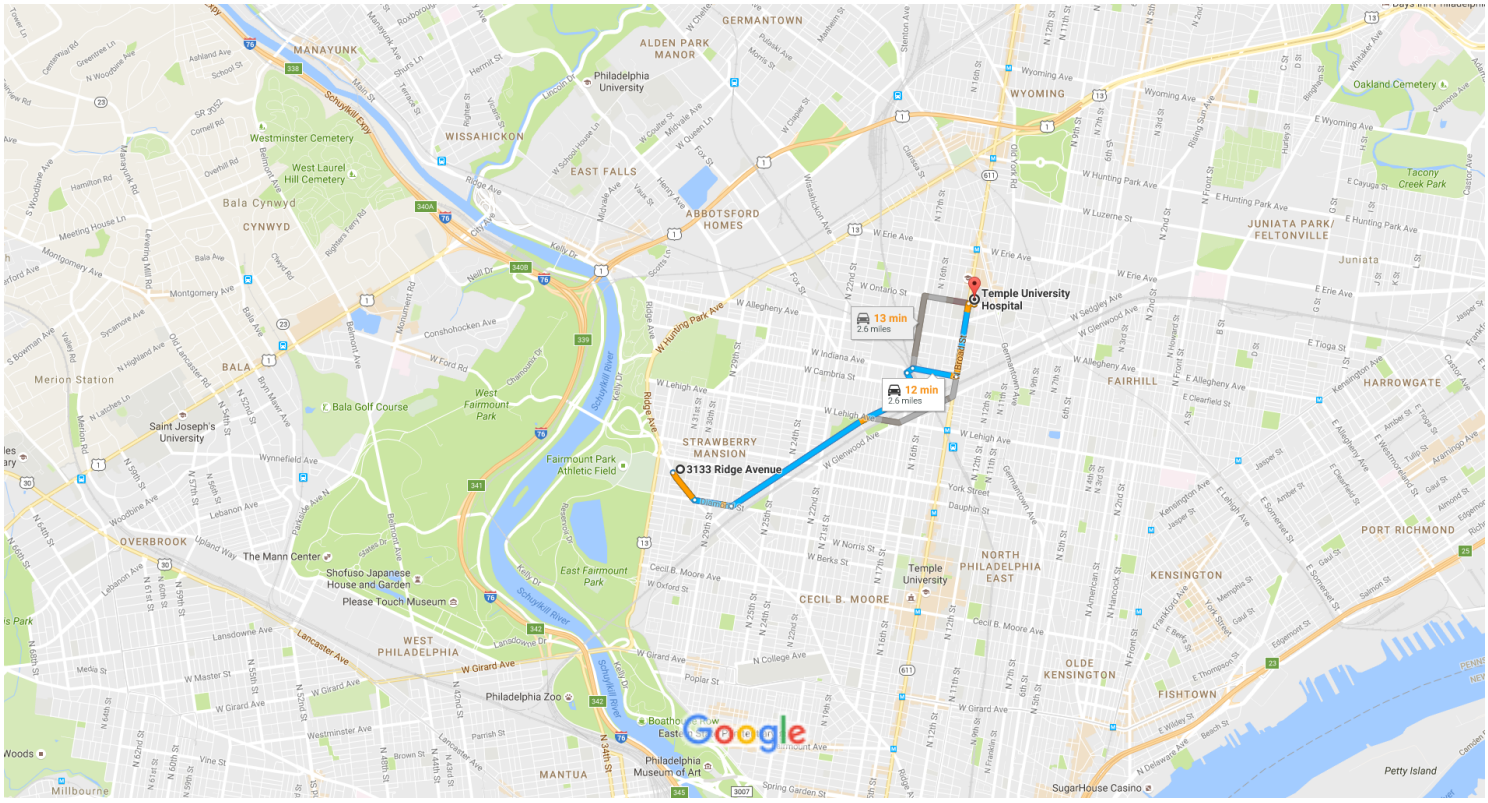
Site Safety Officer Signature or Field Team Leader Signature Date

ATTACHMENT B
HOSPITAL ROUTE MAP

3133 Ridge Avenue, Philadelphia, PA to Temple University Hospital

Drive 2.6 miles, 12 min

Attachment B - Directions to Hospital



Map data ©2016 Google 2000 ft

3133 Ridge Avenue

Philadelphia, PA 19121

Drive along W Sedgley Ave and N Broad St

11 min (2.6 mi)

1. Head southeast on Ridge Ave toward W Susquehanna Ave

0.2 mi

2. Slight left onto Diamond St

0.2 mi

3. Slight left onto W Sedgley Ave

1.2 mi

4. Turn left onto N 17th St

0.2 mi

5. Turn right to stay on N 17th St

230 ft

6. Turn right onto W Indiana Ave

0.3 mi

7. Turn left onto N Broad St

0.4 mi

8. Turn right onto W Ontario St

177 ft

9. Turn left

13 s (36 ft)

Temple University Hospital

3401 North Broad Street, Philadelphia, PA 19140

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

ATTACHMENT C

DAILY TAILGATE SAFETY MEETING FORM

LANGAN TAILGATE SAFETY BRIEFING

Date:_____ Time: _____

Leader:_____ Location:_____

Work Task: _____

SAFETY TOPICS (*provide some detail of discussion points*)

Chemical Exposure Hazards and Control:_____
_____

Physical Hazards and Control: _____

Air Monitoring: _____

PPE: _____
_____

Communications:_____

Safe Work Practices: _____
_____

Emergency Response: _____

Hospital/Medical Center Location: _____

Phone Nos.: _____

Other: _____

FOR FOLLOW-UP (the issues, responsibilities, due dates, etc.**)**

_____
_____
_____

ATTENDEES

PRINT NAME	COMPANY	SIGNATURE