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April 15, 2010

Mr. Richard Schleyer
Public Building Commission of Chicago
Richard J. Daley Center, Room 200
50 West Washington Street
Chicago, IL 60602

**RE: Phase II Environmental Site Assessment
Garvy Elementary School Addition
5225 North Oak Park Avenue
Chicago, Illinois 60656**

Dear Mr. Schleyer:

MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to submit this report of the Phase II Environmental Site Assessment (ESA) of a portion of the Garvy Elementary School Addition property located at 5225 North Oak Park Avenue, Chicago, Illinois.

We appreciate your selection of MACTEC for this project and look forward to assisting you further on other projects. If you have any questions, please do not hesitate to contact us.

Sincerely,

MACTEC Engineering and Consulting, Inc.

A handwritten signature in blue ink, appearing to read "Eric J. Walkowiak".

Eric J. Walkowiak, P. E.
Project Engineer

A handwritten signature in black ink, appearing to read "Mary E. Jank".

Mary E. Jank
Sr. Principal Geologist

Enclosure

**FINAL
PHASE II ENVIRONMENTAL
SITE ASSESSMENT
Garvy Elementary School Addition
5225 North Oak Park Avenue
Chicago, Illinois 60656**

Prepared for:
Public Building Commission of Chicago
Richard J. Daley Center, Room 200
50 West Washington Street
Chicago, Illinois 60602

Prepared by:
MACTEC Engineering & Consulting, Inc.
8745 W. Higgins Road, Suite 300
Chicago, Illinois 60631
(773) 693-6030

April 15, 2010

MACTEC Project No. 3205090995.01

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1.0 INTRODUCTION

MACTEC Engineering and Consulting, Inc. (MACTEC), 8745 West Higgins Road, Suite 300, Chicago, Illinois 60631 was retained by the Public Building Commission of Chicago (PBC), 50 West Washington Street, Room 200, Chicago, Illinois 60602 to perform this Phase II Environmental Site Assessment (Phase II ESA) on a parcel intended for an new two-story addition at the Garvy Elementary School site located at 5225 North Oak Park Avenue, Chicago, Illinois 60656. This Phase II ESA addresses the addition parcel which currently includes a modular school building located on the south east side of the main building, and a surrounding asphalt surfaced area which contains a parking lot, basketball courts, a playground and two play areas, and is hereinafter referred to as the subject Site. Figure 1 shows the location of the existing school and Figure 2 shows the subject Site location.

In February 2009, Carnow, Conibear & Associates, Ltd (CCA) completed a Phase I Environmental Site Assessment (ESA) for the subject Site. The following recognized environmental conditions for the new school addition property (subject Site) were identified in the Phase I report:

- Circa 1928, an auto mechanic shop was listed at 5227 N. Oak Park, which is expected to have been within the area of the current Garvy School campus. Historical operations are expected to have utilized chemicals and petroleum products.
- Records suggest that one unregistered underground storage tank (UST) may have been installed at the subject Site address. The UST may be currently, or may have been historically on or adjacent to the subject Site.

This Phase II ESA was designed to attempt to determine if the historic presence of an auto mechanic shop resulted in the presence of contaminants of concern at concentrations above Tiered Approach to Corrective Action Objectives (TACO) Tier 1 Site Remediation Objectives (SROs) for residential properties or construction worker exposures. The potential heating oil UST was addressed separately. This Phase I ESA consisted of the completion of three soil borings, the collection of soil samples and the laboratory analysis of these soil samples.

2.0 FIELD INVESTIGATIONS

To address the recognized environmental condition outlined in Section 1.0, the following field activities were performed by MACTEC: three soil borings were completed on and adjacent to the Site (school addition property) and soil samples were obtained from each soil boring. Soil sampling was performed on November 27, 2009.

2.1 Health and Safety Plan

MACTEC prepared a site-specific Health and Safety Plan (HASP) to govern the safe performance of the field investigation. The health and safety of MACTEC employees is the focus of the HASP. MACTEC's site investigation activities were conducted in accordance with the HASP.

2.2 Boring Locations

MACTEC completed a total of three (3) borings (SB-1, SB-2 and SB-3) at the Site (school addition property). Boring locations were selected based upon the recognized environmental condition (auto mechanic shop) identified during the Phase I ESA completed by Carnow, Conibear & Associates, Ltd. In February 2009, and per recommendations by the PBC representative who was present at the site during the investigation activities. Boring locations were determined in the field by scaling the particular boring locations from the site plan and measuring off identifiable features on the site. Minor adjustments to boring locations were made due to the presence of transformer connections.

Soil boring SB-1 was placed near the northeast corner of the proposed structure, at the existing parking lot. Soil boring SB-2 was placed south of the building's transformers which are located east of the building. Soil boring SB-3 was placed south of SB-1 and southeast of SB-2, at the existing basketball courts. A site plan showing the completed soil boring locations is included as Figure 2. All three (3) soil borings were completed to 12-feet below ground surface (bgs).

2.3 Soil Boring Procedure

MACTEC retained Paramount Environmental Services of Portage, Indiana, (Paramount) to provide a small track-mounted Geoprobe® Model 5400 drill rig for the purposes of collecting subsurface soils at the site for characterization testing. DIGGER was notified prior to mobilization to mark nearby utilities. In addition, boring locations were scanned using geophysical instrumentation to determine if anomalies indicating possible utility locations were present at the boring locations.

Each soil boring was completed using a Geoprobe® drilling rig and drilled to the desired depth by advancing a 2-inch outside diameter (O.D.) steel sampling tube into the underlying soil using Direct Push Technology (DPT). Continuous soil samples were collected at five-foot sampling intervals using the sampling tube and associated interior acetate soil collection liner. Prior to each sampling interval and between each boring location, the sampling equipment, slide hammer rods and probes were decontaminated by using an Alconox

wash followed by a distilled water rinse. Boreholes were subsequently filled with soil cuttings and/or bentonite pellets to complete boring backfilling.

Soils collected in the DPT acetate liners were screened in the field for the presence of organic vapors using a MiniRAE 2000 Photoionization Detector (PID). Each sample was also visually examined and given an estimated classification using the Unified Soils Classification System (USCS) by the onsite MACTEC environmental professional. Visual or other evidence of recognized environmental conditions, such as staining or chemical odors, was also noted and recorded. Copies of the field boring logs including PID readings are presented in Appendix A. Photographic documentation is presented in Appendix C.

2.4 Sample Collection and Preservation

Soil samples for all testing, except volatile organic analyses, were collected in laboratory-supplied, USEPA-approved four- and eight-ounce glass sample jars. These samples remained unpreserved. Volatile organic sample collection procedures conformed to SW-846 Method 5035 “*Closed System Purge and Trap and Extraction for Volatile Organics in Soil and Waste Samples*”. Collection by SW-846 Method 5035 requires that samples be placed in laboratory-supplied, pre-weighed vials containing preservatives.

In order to reduce the possibility of cross contamination between samples, a new pair of disposable nitrile gloves was donned by the sampler for each sample collected. Upon collection, the sample jars were labeled with the site name, sample number, date, time, and sampler initials, and were placed in an iced cooler. Samples were submitted to STAT, an Illinois Environmental Protection Agency (IEPA)-certified testing laboratory, using proper chain of custody procedures.

2.5 Head Space Analysis

Headspace analysis was conducted on a portion of the soil sample from each 5-foot depth interval within each boring. Headspace analysis was completed by first placing a small portion of soil into a ziplock bag which was then sealed. The bagged samples were left undisturbed for a period of not less than ten minutes to allow any organic compounds to come to equilibrium within the bag. The tip of a MiniRAE 2000 photoionization detector (PID) was then inserted into the bag. The PID utilizes a lamp with an ionization potential of 10.6 electron volts. The maximum PID response for each sample was recorded on the field boring logs as summarized in Appendix A. No background PID response was noted. Headspace readings were 0.0 parts per million (ppm) for all samples tested.

2.6 Sample Selection and Analysis

In accordance with the planned investigation, three (3) samples were obtained from the three (3) soil borings. Samples obtained are summarized on the following table:

Boring Location	Sample Depth (feet below ground surface)	Sample Number	Analyzed
SB-1	2.5 – 4	SB-1-A	No
SB-1	6 – 8	SB-1-B	No
SB-1	10 – 11.5	SB-1-C	X
SB-2	2.5 – 4.5	SB-2-A	X
SB-2	5.5 – 7	SB-2-B	No
SB-2	10.5 – 12	SB-2-C	No
SB-3	2 – 4	SB-3-A	X
SB-3	5 – 7.5	SB-3-B	No
SB-3	10 -12	SB-3-C	No

A total of three (3) samples were selected for analysis. Samples were selected based upon headspace readings and/or any noticeable evidence of unusual stains or odors. In the absence of significantly differing headspace readings or where no unusual stains or odors were noted, sample selection was based upon engineering judgment given the observations from one soil boring to the next. MACTEC attempted to select sample depths for analysis to vertically represent the recognized environmental condition (auto mechanic shop). The three (3) samples were analyzed for the Site Remediation Program Target Compound List [SRP TCL] (35 IAC 740 Appendix A) which includes: volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, Priority Pollutant metals, cyanide and pH.

Specific analytical parameters and methodology employed by the laboratory are as follows:

- VOCs by USEPA Method 5035/8260B
- SVOCs by USEPA Method 8270C
- PNAs by USEPA Method 8270C - SIM
- Priority Pollutant (PP) Metals by USEPA Method 6020 for all except mercury (Method 7471A)
- Cyanide (CN) by USEPA Method 9012A
- Pesticides/PCBs by USEPA Method 8081A/8082
- pH by USEPA Method 9045C

2.7 Investigative Wastes

The use of Geoprobe® drilling equipment produced only a small amount of soil cuttings. All excess soil was placed back into the boreholes. Each borehole was then filled to grade using bentonite pellets. Decontamination water generated from the investigation was minimal and was poured on an asphalt surface away from boring locations.

3.0 RESULTS

3.1 Physical Results

3.1.1 Geology

Soil samples collected from the borings were examined and a physical classification of the materials was made and recorded on the Boring Logs in Appendix A. The soil geologic characteristics observed during the investigation are described below.

In general, the site is overlain by asphalt and gravel to a depth of 6 inches. Below the asphalt and gravel, fill material was encountered to depths ranging from 2 to 3 feet below ground surface (bgs). Below the fill material, silty clay was encountered to the total depth of the borings at 12 feet bgs. Wood pieces were encountered at the SB-1 soil boring at depths of 2 to 2.5 feet. No debris (concrete, brick, coal fines, organic materials, etc) was encountered in the SB-2 and SB-3 soil borings. No staining was seen in any of the soil borings. Wet soils indicating groundwater was present were encountered at a depth of 11 to 12 feet bgs in the SB-1 soil boring. No groundwater was encountered in the SB-2 and SB-3 soil borings to 12 feet bgs.

3.2 Chemical Results

All soil sample analytical results were compared to the current IEPA Tiered Approach to Corrective Action Objectives (TACO) Tier 1 Soil Remediation Objectives (SROs) for Residential sites. Soil Remediation Objectives (SROs) were determined from TACO Tier 1 residential and construction worker soil remediation objectives found in 35 IAC 742 Appendix B Table A and B, and Appendix B Tables C and D; and background concentrations found in 35 IAC 742 Appendix A, Table H. The analytical results are summarized and compared to the SROs in Table 1. The laboratory analytical reports are provided in Appendix B.

No VOCs, SVOCs (except PNAs), pesticides, PCBs or cyanide were detected in samples SB-1-C, SB-2-A and SB-3-A. PNAs were detected in all three samples; however, all of the detected concentrations of PNAs were below the SROs for residential properties and construction workers. Detected PNA concentrations are presented in Table 1.

Metals were detected in all three soil samples at concentrations below their SROs for residential properties and construction workers. Detected metals concentrations are presented in Table 1. The following metals were detected in the soil samples: aluminum, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc.

4.0 SUMMARY AND RECOMMENDATIONS

MACTEC performed a Phase II ESA in accordance with our proposal to the PBC on a parcel intended for a new two-story addition at the Garvy Elementary School site located at 5225 North Oak Park Avenue, Chicago, Illinois 60656. The parcel addressed by this Phase II includes a modular school building located on the south east of the main building, and a surrounding asphalt surfaced area which contains a parking lot, basketball courts, a playground and two play areas, and is referred to in this report as the subject Site.

The purpose of this Phase II Environmental Site Assessment was to determine if the historic use of the proposed school addition property as an auto mechanic shop has resulted in the presence of contaminants of concern above TACO Residential and Construction Worker Tier 1 SROs. During this Phase II Environmental Site Assessment, three soil borings were completed at the subject Site. Three samples were analyzed for the SRP TCL (35 IAC 740 Appendix A) which includes: VOCs, PNAs, SVOCs, PCBs, pesticides, Priority Pollutant metals, cyanide and pH.

The soil borings found asphalt and gravel to 6 inches in depth, below which was fill material to depths of 2 to 3 feet below the surface. Below the fill material, silty clay was encountered to the total depth of the borings at 12 feet. Groundwater encountered at a depth of 11 to 12 feet below ground surface in the SB-1 soil boring. No groundwater was encountered in the SB-2 and SB-3 soil borings to 12 feet in depth.

Nine (9) samples were obtained from the three (3) borings. Three (3) samples were then selected for analytical testing for the SRP Target Compound list of analytes. The following is a summary of the analytical results:

- No VOCs, pesticides, PCBs or cyanide were detected in the three samples.
- With the exception of PNAs, no SVOCs were detected in the three samples.
- All of the detected concentrations of PNAs were below the applicable SROs for residential properties and construction workers.
- All of the detected concentrations of metals were below their applicable SROs for residential properties and construction workers in all three samples.

Based on the above results, no further investigation or testing is recommended for the subject Site.

Table

TABLE 1
SUMMARY OF SOIL SAMPLE TARGET COMPOUND LIST ANALYTICAL RESULTS

GARVY ELEMENTARY SITE

CHICAGO, ILLINOIS

Parameter	Sample ID Sample Depth (feet)	SB-1-C 10.0-11.5'	SB-2-A 2.5-4.5'	SB-3-A 2.0-4.0'	TACO Tier 1 Residential SROs (1)		TACO Tier 1 Construction Worker SROs (2)		TACO Tier 1 SRO Class I Groundwater (3)	TACO Tier 1 SRO Class II Groundwater (3)	TACO Tier 1 Background Concentrations (5)
					Ingestion	Inhalation	Ingestion	Inhalation			
Sample Date	11/27/09	11/27/09	11/27/09								
VOCs											
Acetone	< 0.096	< 0.089	< 0.1	70,000	100,000	NE	100,000	25	25	NE	
Benzene	< 0.0064	< 0.0059	< 0.0068	12	0.8	2,300	2.2	0.03	0.17	NE	
Bromodichloromethane	< 0.0064	< 0.0059	< 0.0068	10	3,000	2,000	3,000	0.6	0.6	NE	
Bromoform	< 0.0064	< 0.0059	< 0.0068	81	53	16,000	140	0.8	0.8	NE	
Bromomethane	< 0.013	< 0.012	< 0.014	110	10	1,000	3.9	0.2	1.2	NE	
2-Butanone	< 0.096	< 0.089	< 0.1	47,000 (6)	13,000 (6)	120,000 (6)	140 (6)	17 (6)	17 (6)	NE	
Carbon disulfide	< 0.064	< 0.059	< 0.068	7,800	720	20,000	9	32	160	NE	
Carbon tetrachloride	< 0.0064	< 0.0059	< 0.0068	5	0.3	410	0.9	0.07	0.33	NE	
Chlorobenzene	< 0.0064	< 0.0059	< 0.0068	1,600	130	4,100	1.3	1	6.5	NE	
Chloroethane	< 0.013	< 0.012	< 0.014	NE	NE	NE	NE	NE	NE	NE	
Chloroform	< 0.0064	< 0.0059	< 0.0068	100	0.3	2,000	0.76	0.6	2.9	NE	
Chloromethane	< 0.013	< 0.012	< 0.014	NE	NE	NE	NE	NE	NE	NE	
Dibromochloromethane	< 0.0064	< 0.0059	< 0.0068	1,600	1,300	41,000	1,300	0.4	0.4	NE	
1,1-Dichloroethane	< 0.0064	< 0.0059	< 0.0068	7,800	1,300	200,000	130	23	110	NE	
1,2-Dichloroethane	< 0.0064	< 0.0059	< 0.0068	7	0.4	1,400	0.99	0.02	0.1	NE	
1,1-Dichloroethene	< 0.0064	< 0.0059	< 0.0068	3,900	290	10,000	3	0.06	0.3	NE	
cis-1,2-Dichloroethene	< 0.0064	< 0.0059	< 0.0068	780	1,200	20,000	1,200	0.4	1.1	NE	
trans-1,2-Dichloroethene	< 0.0064	< 0.0059	< 0.0068	1,600	3,100	41,000	3,100	0.7	3.4	NE	
1,2-Dichloropropane	< 0.0064	< 0.0059	< 0.0068	9	15	1,800	0.5	0.03	0.15	NE	
cis-1,3-Dichloropropene	< 0.0026	< 0.0024	< 0.0027	6.4	1.1	1,200	0.39	0.004	0.02	NE	
trans-1,3-Dichloropropene	< 0.0026	< 0.0024	< 0.0027	6.4	1.1	1,200	0.39	0.004	0.02	NE	
Ethylbenzene	< 0.0064	< 0.0059	< 0.0068	7,800	400	20,000	58	13	19	NE	
2-Hexanone	< 0.026	< 0.024	< 0.027	NE	NE	NE	NE	NE	NE	NE	
4-Methyl-2-pentanone	< 0.026	< 0.024	< 0.027	NE	NE	NE	NE	NE	NE	NE	
Methylene chloride	< 0.013	< 0.012	< 0.014	85	13	12,000	34	0.02	0.2	NE	
Methyl tert-butyl ether	< 0.0064	< 0.0059	< 0.0068	780	8,800	2,000	140	0.32	0.32	NE	
Styrene	< 0.0064	< 0.0059	< 0.0068	16,000	1,500	41,000	430	4	18	NE	
1,1,2,2-Tetrachloroethane	< 0.0064	< 0.0059	< 0.0068	NE	NE	NE	NE	NE	NE	NE	
Tetrachloroethene	< 0.0064	< 0.0059	< 0.0068	12	11	2,400	28	0.06	0.3	NE	
Toluene	< 0.0064	< 0.0059	< 0.0068	16,000	650	410,000	42	12	29	NE	
1,1,1-Trichloroethane	< 0.0064	< 0.0059	< 0.0068	NE	1,200	NE	1,200	2	9.6	NE	
1,1,2-Trichloroethane	< 0.0064	< 0.0059	< 0.0068	310	1,800	8,200	1,800	0.02	0.3	NE	
Trichloroethene	< 0.0064	< 0.0059	< 0.0068	58	5	1,200	12	0.06	0.3	NE	
Vinyl chloride	< 0.0064	< 0.0059	< 0.0068	0.46	0.28	170	1.1	0.01	0.07	NE	
Xylenes, Total	< 0.019	< 0.018	< 0.02	16,000	320	41,000	5.6	150	150	NE	
PNAs											
Acenaphthene	< 0.027	< 0.027	< 0.029	4,700	NE	120,000	NE	570	2,900	0.09	
Acenaphthylene	< 0.027	< 0.027	< 0.029	2,300 (4)	NE (4)	61,000 (4)	NE (4)	85 (4)	420 (4)	0.03	
Anthracene	< 0.027	0.031	< 0.029	23,000	NE	610,000	NE	12,000	59,000	0.25	
Benzo(a)anthracene	< 0.027	0.16	< 0.029	0.9	NE	170	NE	2	8	1.1	
Benzo(a)pyrene	< 0.027	0.16	< 0.029	0.09	NE	17	NE	8	82	1.3	
Benzo(b)fluoranthene	< 0.027	0.19	< 0.029	0.9	NE	170	NE	5	25	1.5	
Benzo(g,h,i)perylene	< 0.027	0.066	< 0.029	2,300 (4)	NE (4)	61,000 (4)	NE (4)	27,000 (4)	130,000 (4)	0.68	
Benzo(k)fluoranthene	< 0.027	0.11	< 0.029	9	NE	1,700	NE	49	250	0.99	
Chrysene	< 0.027	0.16	< 0.029	88	NE	17,000	NE	160	800	1.2	
Dibenz(a,h)anthracene	< 0.027	0.034	< 0.029	0.09	NE	17	NE	2	7.6	0.2	
Fluoranthene	0.038	0.33	< 0.029	3,100	NE	82,000	NE	4,300	21,000	2.7	
Fluorene	< 0.027	< 0.027	< 0.029	3,100	NE	82,000	NE	560	2,800	0.1	
Indeno(1,2,3-cd)pyrene	< 0.027	0.069	< 0.029	0.9	NE	170	NE	14	69	0.86	
Naphthalene	< 0.027	< 0.027	< 0.029	1,600	170	4,100	1.8	12	18	0.04	
Phenanthrene	< 0.027	0.17	< 0.029	2,300 (4)	NE (4)	61,000 (4)	NE (4)	200 (4)	1,000 (4)	1.3	
Pyrene	0.029	0.29	< 0.029	2,300	NE	61,000	NE	4,200	21,000	1.9	
SVOCs											
Aniline	< 0.18	< 0.18	< 0.19	110 (4)	83 (4)	1400 (4)	8.6 (4)	0.063 (4)	0.063 (4)	NE	
Benzidine	< 0.18	< 0.18	< 0.19	0.003 (4)	0.009 (4)	0.54 (4)	0.02 (4)	0.0000022 (4)	0.0000022 (4)	NE	
Benzoic acid	< 0.85	< 0.87	< 0.94	310,000	NE	820,000	NE	400	400	NE	
Benzyl alcohol	< 0.18	< 0.18	< 0.19	39000 (4)	6100 (4)	200000 (4)	6100 (4)	15 (4)	15 (4)	NE	
Bis(2-chloroethoxy)methane	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE	
Bis(2-chloroethyl)ether	< 0.18	< 0.18	< 0.19	0.6	0.2	75	0.66	0.0004	0.0004	NE	
Bis(2-ethylhexyl)phthalate	< 0.18	< 0.18	< 0.19	46	31,000	4,100	31,000	3,600	31,000	NE	
4-Bromophenyl phenyl ether	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE	
Butyl benzyl phthalate	< 0.18	< 0.18	< 0.19	16,000	930	410,000	930	930	930	NE	
Carbazole	< 0.18	< 0.18	< 0.19	32	NE	6,200	NE	0.6	2.8	NE	
4-Chloroaniline	< 0.18	< 0.18	< 0.19	310	NE	820	NE	0.7	0.7	NE	
4-Chloro-3-methylphenol	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE	
2-Chloronaphthalene	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE	
2-Chlorophenol	< 0.18	< 0.18	< 0.19	390	53,000	10,000	53,000	4	4	NE	
4-Chlorophenyl phenyl ether	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE	
Dibenzofuran	< 0.18	< 0.18	< 0.19	NE	NE	820 (4)	NE	NE	NE	NE	
1,2-Dichlorobenzene	< 0.18	< 0.18	< 0.19	7,000	560	18,000	310	17	43	NE	

TABLE 1
SUMMARY OF SOIL SAMPLE TARGET COMPOUND LIST ANALYTICAL RESULTS

GARYV ELEMENTARY SITE

CHICAGO, ILLINOIS

Sample ID Sample Depth (feet)	SB-1-C 10.0-11.5'	SB-2-A 2.5-4.5'	SB-3-A 2.0-4.0'	TACO Tier 1 Residential SROs (1)		TACO Tier 1 Construction Worker SROs (2)		TACO Tier 1 SRO Class I Groundwater	TACO Tier 1 SRO Class II Groundwater	TACO Tier 1 Background Concentrations
	Sample Date 11/27/09	11/27/09	11/27/09	Ingestion	Inhalation	Ingestion	Inhalation	(3)	(3)	(5)
1,3-Dichlorobenzene	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE
1,4-Dichlorobenzene	< 0.18	< 0.18	< 0.19	NE	11,000	NE	340	2	11	NE
3,3'-Dichlorobenzidine	< 0.35	< 0.36	< 0.39	1	NE	280	NE	0.007	0.033	NE
2,4-Dichlorophenol	< 0.18	< 0.18	< 0.19	230	NE	610	NE	1	1	NE
Diethyl phthalate	< 0.18	< 0.18	< 0.19	63,000	2,000	1,000,000	2,000	470	470	NE
2,4-Dimethylphenol	< 0.18	< 0.18	< 0.19	1,600	NE	41,000	NE	9	9	NE
Dimethyl phthalate	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE
4,6-Dinitro-2-methylphenol	< 0.85	< 0.87	< 0.94	NE	NE	NE	NE	NE	NE	NE
2,4-Dinitrophenol	< 0.85	< 0.87	< 0.94	160	NE	410	---	0.2	0.2	NE
2,4-Dinitrotoluene	< 0.18	< 0.18	< 0.19	0.9	NE	180	---	0.0008	0.0008	NE
2,6-Dinitrotoluene	< 0.18	< 0.18	< 0.19	0.9	NE	180	---	0.0007	0.0007	NE
Di-n-butyl phthalate	< 0.18	< 0.18	< 0.19	7,800	2,300	200,000	2,300	2,300	2,300	NE
Di-n-octyl phthalate	< 0.18	< 0.18	< 0.19	1,600	10,000	4,100	10,000	10,000	10,000	NE
Hexachlorobenzene	< 0.18	< 0.18	< 0.19	0.4	1	78	2.6	2	11	NE
Hexachlorobutadiene	< 0.18	< 0.18	< 0.19	78 (4)	150 (4)	200 (4)	72 (4)	2.2 (4)	11 (4)	NE
Hexachlorocyclopentadiene	< 0.18	< 0.18	< 0.19	550	10	14,000	1.1	400	2,200	NE
Hexachloroethane	< 0.18	< 0.18	< 0.19	78	NE	2,000	NE	0.5	2.6	NE
Isophorone	< 0.18	< 0.18	< 0.19	15,600	4,600	410,000	4,600	8	8	NE
2-Methylnaphthalene	< 0.18	< 0.18	< 0.19	NE	NE	820 (6)	NE (6)	NE	NE	NE
2-Methylphenol	< 0.18	< 0.18	< 0.19	3,900	NE	100,000	NE	15	15	NE
4-Methylphenol	< 0.18	< 0.18	< 0.19	390 (4)	NE (4)	1000 (4)	NE (4)	0.2 (4)	0.2 (4)	NE
2-Nitroaniline	< 0.85	< 0.87	< 0.94	230 (4)	35 (4)	610 (4)	3.6 (4)	0.14 (4)	0.14 (4)	NE
3-Nitroaniline	< 0.85	< 0.87	< 0.94	23 (4)	250 (4)	61 (4)	26 (4)	0.01 (4)	0.01 (4)	NE
4-Nitroaniline	< 0.85	< 0.87	< 0.94	230 (4)	1000 (4)	610 (4)	110 (4)	0.1 (4)	0.1 (4)	NE
2-Nitrophenol	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE
4-Nitrophenol	< 0.85	< 0.87	< 0.94	NE	NE	NE	NE	NE	NE	NE
Nitrobenzene	< 0.18	< 0.18	< 0.19	39	92	1,000	9.4	0.1	0.1	NE
N-Nitrosodimethylamine	< 0.18	< 0.18	< 0.19	0.013 (4)	0.012 (4)	1.6 (4)	0.032 (4)	0.0000067 (4)	0.0000067 (4)	NE
N-Nitrosodiphenylamine	< 0.18	< 0.18	< 0.19	130	NE	25000	NE	1	5.6	NE
2, 2'-oxybis(1-Chloropropane)	< 0.18	< 0.18	< 0.19	NE	NE	NE	NE	NE	NE	NE
Phenol	< 0.18	< 0.18	< 0.19	23,000	NE	61,000	NE	100	100	NE
Pyridine	< 0.18	< 0.18	< 0.19	78 (4)	100000 (4)	2000 (4)	4800 (4)	NE (4)	NE (4)	NE
1,2,4-Trichlorobenzene	< 0.18	< 0.18	< 0.19	780	3,200	2,000	920	5	53	NE
2,4,5-Trichlorophenol	< 0.35	< 0.36	< 0.39	7,800	NE	200,000	NE	270	1,400	NE
2,4,6-Trichlorophenol	< 0.18	< 0.18	< 0.19	58	200	11,000	540	0.2	0.77	NE
N-Nitrosodi-n-propylamine	< 0.027	< 0.027	< 0.029	0.09	NE	18	NE	0.00005	0.00005	NE
Pentachlorophenol	< 0.021	< 0.027	< 0.029	3	NE	520	NE	0.03	0.14	NE
PCBs										
Polychlorinated Biphenyls	< 0.096	< 0.098	< 0.1	1.0	NE	1.0	NE	NE	NE	NE
PESTICIDES										
4,4'-DDD	< 0.0019	< 0.002	< 0.0021	3	NE	520	NE	16	80	NE
4,4'-DDE	< 0.0019	< 0.002	< 0.0021	2	NE	370	NE	54	270	NE
4,4'-DDT	< 0.0019	< 0.002	< 0.0021	2	NE	100	2,100	32	160	NE
Aldrin	< 0.0019	< 0.002	< 0.0021	0.04	3	6.1	9.3	0.5	2.5	NE
alpha-BHC	< 0.0019	< 0.002	< 0.0021	0.1	0.8	20	2.1	0.0005	0.003	NE
alpha-Chlordane	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
beta-BHC	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
Chlordane	< 0.04	< 0.041	< 0.042	1.8	72.0	100	22	10	48	NE
delta-BHC	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
Dieldrin	< 0.0019	< 0.002	< 0.0021	0.04	1	7.8	3.1	0.004	0.02	NE
Endosulfan I	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
Endosulfan II	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
Endosulfan sulfate	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
Endrin	< 0.0019	< 0.002	< 0.0021	23	NE	61	NE	1	5	NE
Endrin aldehyde	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
Endrin ketone	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
gamma-BHC	< 0.0019	< 0.002	< 0.0021	0.5	NE	96	NE	0.009	0.047	NE
gamma-Chlordane	< 0.0019	< 0.002	< 0.0021	NE	NE	NE	NE	NE	NE	NE
Heptachlor	< 0.0019	< 0.002	< 0.0021	0.1	0.1	28	16	23	110	NE
Heptachlor epoxide	< 0.0019	< 0.002	< 0.0021	0.07	5	2.7	13	0.7	3.3	NE
Methoxychlor	< 0.0019	< 0.002	< 0.0021	390	NE	1,000	NE	160	780	NE
Toxaphene	< 0.04	< 0.041	< 0.042	0.6	89	110	240	31	150	NE
METALS , TOTAL										
Aluminum	12,000	12,000	19,000	78,000 (4)	1,000,000 (6)	410,000 (4)	870,000 (4)	NE	NE	9,500
Antimony	< 2.3	< 2.3	< 2.5	31	NE	82	NE	5/5	20/20	4.0
Arsenic	6.9	12	7.2	13.0	750	61	25,000	31/32	120/130	13.0
Barium	60	110	230	5,500	690,000	14,000	870,000	2,100/NE	2,100/NE	110
Beryllium	< 0.58	< 0.57	0.95	160	1,300	410	44,000	8,000/NE	1,000,000/NE	0.59
Cadmium	< 0.58	< 0.57	< 0.62	78	1,800	200	59,000	430/NE	4,300/NE	0.6
Calcium	64,000	3,100	6,100	NE	NE	NE	NE	NE	NE	9,300
Chromium	20	21	29	230	270	4,100	690	28/24	NE	16.2

TABLE 1
SUMMARY OF SOIL SAMPLE TARGET COMPOUND LIST ANALYTICAL RESULTS

GARVY ELEMENTARY SITE

CHICAGO, ILLINOIS

Parameter	Sample ID	SB-1-C	SB-2-A	SB-3-A	TACO Tier 1 Residential SROs (1)		TACO Tier 1 Construction Worker SROs (2)		TACO Tier 1 SRO Class I Groundwater (3)	TACO Tier 1 SRO Class II Groundwater (3)	TACO Tier 1 Background Concentrations (5)
	Sample Depth (feet)	10.0-11.5'	2.5-4.5'	2.0-4.0'	Ingestion	Inhalation	Ingestion	Inhalation			
Sample Date	11/27/09	11/27/09	11/27/09								
Cobalt	10	17	13	4,700	NE	12,000	NE	NE	NE	NE	8.9
Copper	24	20	24	2,900	NE	8,200	NE	330,000/NE	330,000/NE	NE	19.6
Iron	21,000	28,000	30,000	55,000 (6)	NE (6)	140,000 (6)	NE (6)	NE	NE	NE	15,900
Lead	14	25	24	400	NE	700	NE	107/107	1,420/1,420	NE	36.0
Magnesium	31,000	4,100	6,500	325,000	NE	730,000	NE	NE	NE	NE	4,820
Manganese	410	1,100	1,200	1,600	69,000	4,100	8,700	NE	NE	NE	636
Mercury	< 0.022	0.031	0.037	23	10	61	0.1	8.0/NE	40/NE	NE	0.06
Nickel	32	33	34	1,600	13,000	4,100	440,000	3,800/NE	76,000/NE	NE	18
Potassium	2,400	1,700	1,800	NE	NE	NE	NE	NE	NE	NE	1,268
Selenium	< 1.2	< 1.1	< 1.2	390	NE	1,000	NE	2.4/1.8	2.4/1.8	NE	0.48
Silver	< 1.2	< 1.1	< 1.2	390	NE	1,000	NE	110/NE	NE	NE	0.55
Sodium	140	390	130	NE	NE	NE	NE	NE	NE	NE	130
Thallium	< 1.2	< 1.1	< 1.2	6.3	NE	160	NE	3.8/4.4	38/44	NE	0.32
Vanadium	22	32	43	550	NE	1,400	NE	980/980	NE	NE	25.2
Zinc	45	49	62	23,000	NE	61,000	NE	53,000/NE	110,000/NE	NE	95
CYANIDE											
Cyanide	< 0.3	< 0.31	< 0.32	1,600	NE	4,100	NE	40/40	120/120	NE	0.51
pH											
pH	8.2	7.5	7.0	USEPA Criteria for determination of hazardous waste: not less than 2 or greater than 12							

Notes:

- (1): Soil remediation objective (SRO) for the soil ingestion or inhalation routes for residential properties 35 IAC 742 Appendix B, Table A.
- (2): Soil remediation objective (SRO) for the soil ingestion or inhalation routes for construction worker exposure 35 IAC 742 Appendix B, Table B.
- (3): The soil remediation objective (SRO) for the soil component of the groundwater ingestion route for Class I and Class II groundwater 35 IAC 742 Appendix B, Table A. For metals and cyanide, the objectives are pH specific and objectives are given for both the 8.2 pH and the 8.5 pH (8.2 pH objective/8.5 pH objective)
- (4): Objectives provided by Illinois EPA for chemicals not contained in the TACO Tier I tables.
These objectives are not established TACO Tier I objectives. Approval to use these objectives must still be obtained from Illinois EPA on a site specific and program basis.
- (5): Concentrations of Inorganic Chemicals in Background Soils within Counties Inside Metropolitan Statistical Areas (35 IAC 742 Appendix A, Table G).
Concentrations of Polynuclear Aromatic Hydrocarbon Chemicals in Background Soils within the City of Chicago (35 IAC 742 Appendix A, Table H).
- (6): Objectives obtained from proposed amendments to TACO (35 IAC 742), dated September 3, 2008
These objectives are not established TACO Tier I objectives. Approval to use these objectives must still be obtained from Illinois EPA on a site specific and program basis.

mg/kg Milligram per kilogram

NE Not established by the Illinois Environmental Protection Agency

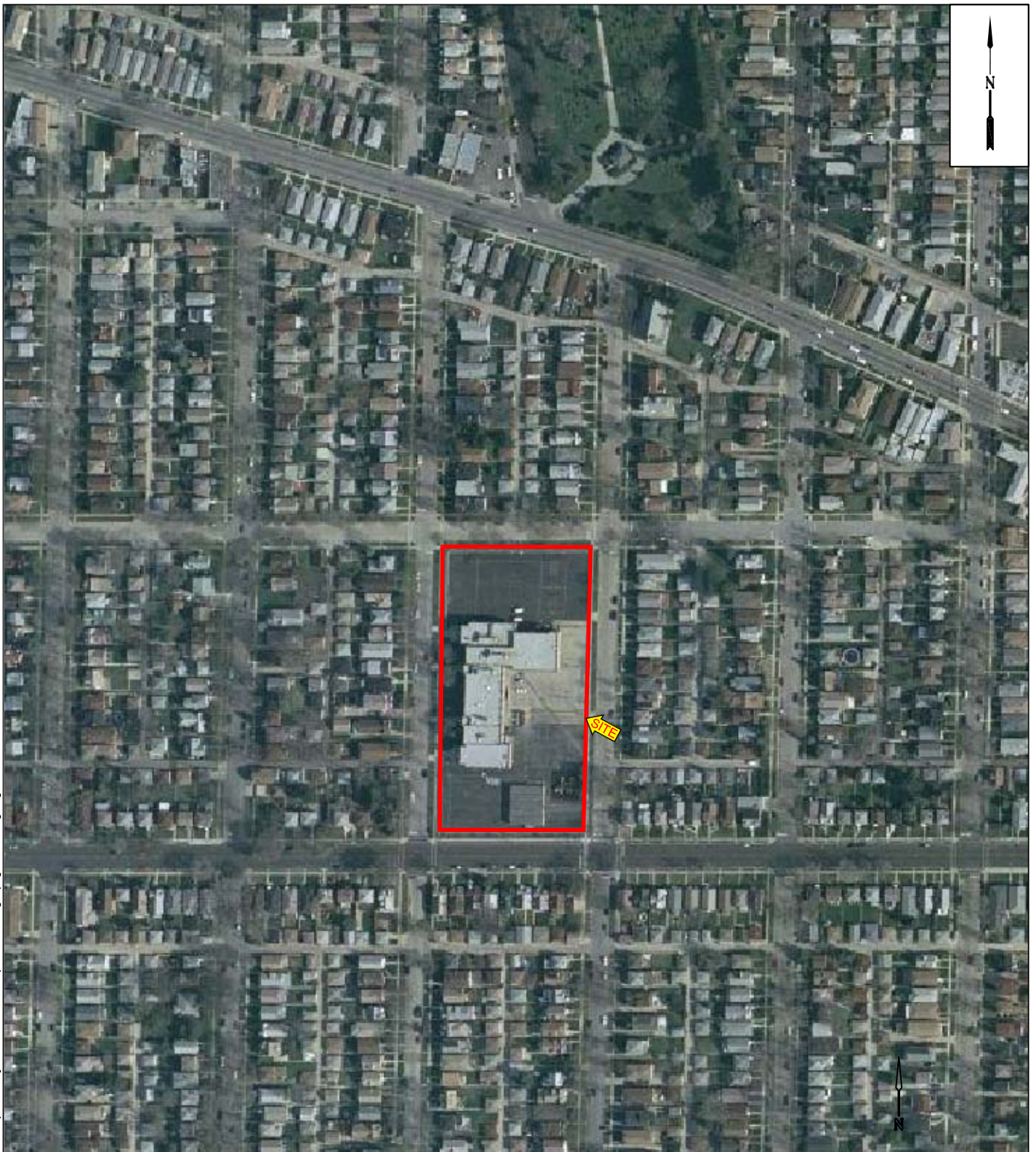
BOLD Laboratory Analytical Detection

BOLD + HIGHLIGHT Laboratory Analytical Detection that exceeds the most stringent established TACO Tier 1 SROs

Prepared by: MV 1/14/10
Checked by: MEJ 1/14/10

Figures

1/18/2010 8:30 PM P:\Enr\3205090995\4.0 Project Deliverables\4.3 Drawings\Figure 2.dwg fig 1



LEGEND:

 = APPROXIMATE SITE BOUNDARY

NOT TO SCALE



Site & Vicinity Map
 John W. Garvy Elementary School
 5225 North Oak Park Avenue
 Chicago, IL

FIGURE
1

DRAWN
GAP

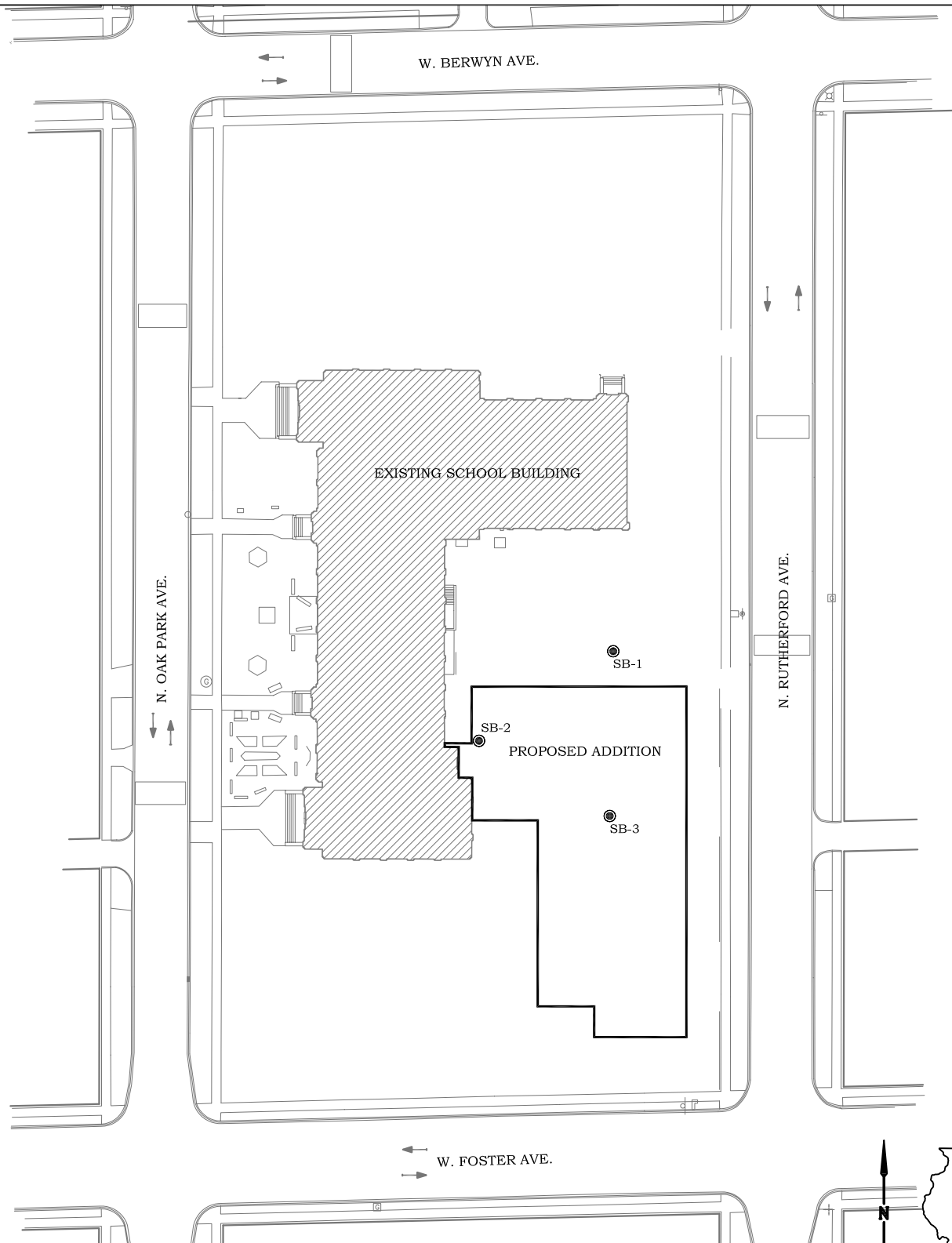
PROJECT NUMBER
3205090995

APPROVED
MV

DATE
1/18/10

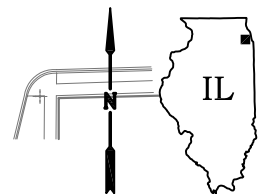
REVISED DATE

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LEGEND:

● = SOIL SAMPLE LOCATIONS



SCALE 1"=80'



Soil Sample Locations
 John W. Garvy Elementary School
 5225 North Oak Park Avenue
 Chicago, IL

FIGURE
2

DRAWN
 GAP

PROJECT NUMBER
 3205090995

APPROVED
 MV

DATE
 1/18/10

REVISED DATE

Appendix A
Test Boring Records



8745 W. HIGGINS RD.
SUITE 300
CHICAGO, IL 60631

TEST BORING RECORD

CLIENT: Chicago Public Schools	SITE: John W. Garvy Elementary School
BORING NO: SB-1	5225 North Oak Park
DATE: 11/27/2009	Chicago, IL
LOGGED BY: AEH	DRILLED BY: Paramount Environmental Services
DRILLING METHOD: 5400 Track-mount Geoprobe	SAMPLING METHOD: Continuous

BORING LOCATION: Northeastern most boring near northeast corner of proposed structure.	HOLE DIA.: 2"
MACTEC PROJECT NUMBER: 3205-09-0995.01	TOTAL DEPTH: 12'

DEPTH	SAMPLE NUMBER	SAMPLE RECOVERY	PID READING (ppm)	MOISTURE CONTENT	LITHOLOGY	REMARKS
0	A	5'	0.0	Dry	Asphalt and very little gravel	Gravel was moist
1					FILL: Brown and grey silty clay with trace gravel	Soil Sample SB-1-A at 2.5-4.0' bgs
2					TOPSOIL: Black clayey silt with trace gravel and wood pieces	
3					Brown to olive silty clay with trace gravel	
4					Dark brown and gray silty clay with trace gravel	
5	B	5'	0.0	Dry	Brown to orangish brown and gray silty clay (stiff) with trace to little gravel and trace sand	Soil Sample SB-1-B at 6.0-8.0' bgs
6						Soil Sample SB-1-C at 10.0-11.5' bgs
7						
8	C	2'	0.0	Slightly Moist Moist to Wet	Brown silty clay with trace sand and gravel	1-2 inches of sand at 11.5 ft, wet
9					Brown silty clay with little sand and trace gravel	
10	Boring terminated at 12' below ground surface (bgs)					Prepared By: MV 1/11/10 Checked By: AEH 1/13/10
11						
12						
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22						
23						
24						
25						



8745 W. HIGGINS RD.
SUITE 300
CHICAGO, IL 60631

TEST BORING RECORD

CLIENT: Chicago Public Schools	SITE: John W. Garvy Elementary School
BORING NO: SB-2	5225 North Oak Park
DATE: 11/27/2009	Chicago, IL
LOGGED BY: AEH	DRILLED BY: Paramount Environmental Services
DRILLING METHOD: 5400 Track-mount Geoprobe	SAMPLING METHOD: Continuous

BORING LOCATION: Adjacent to building transformers and furthest west boring	HOLE DIA.: 2"
MACTEC PROJECT NUMBER: 3205-09-0995.01	TOTAL DEPTH: 12'

DEPTH	SAMPLE NUMBER	SAMPLE RECOVERY	PID READING (ppm)	MOISTURE CONTENT	LITHOLOGY	REMARKS
0			0.0	Dry to Slightly Moist	Asphalt and gravel	Gravel was moist
1	A	4'	0.0	Dry	FILL: Brown to dark brown silty clay with little gravel	Soil Sample SB-2-A at 2.5-4.5' bgs
2			0.0	Dry	FILL/TOPSOIL: Black to reddish brown silt with little clay and trace gravel	
3			0.0	Dry	FILL: Dark brown to grayish brown silty clay with little sand and gravel	
4			0.0	Dry		1 inch sand layer at 4.8' bgs, dry
5	B	5'	0.0	Dry to Moist	FILL: Dark brown to orangish brown silty clay with little sand and gravel	Soil Sample SB-2-B at 5.5-7.0' bgs
6			0.0	Dry	Brown and grey silty clay with trace to little gravel (stiff)	
7						
8						
9						
10	C	2'	0.0	Dry	Brown silty clay with trace to little gravel (stiff)	Soil Sample SB-2-C at 10.5-12.0' bgs
11			0.0	Dry		
12					Boring terminated at 12' below ground surface (bgs)	
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Prepared By: MV 1/11/10
Checked By: AEH 1/13/10



8745 W. HIGGINS RD.
SUITE 300
CHICAGO, IL 60631

TEST BORING RECORD

CLIENT: Chicago Public Schools	SITE: John W. Garvy Elementary School
BORING NO: SB-3	5225 North Oak Park
DATE: 11/27/2009	Chicago, IL
LOGGED BY: AEH	DRILLED BY: Paramount Environmental Services
DRILLING METHOD: 5400 Track-mount Geoprobe	SAMPLING METHOD: Continuous

BORING LOCATION: Centralized boring south of SB-1 and southeast of SB-2	HOLE DIA.: 2"
MACTEC PROJECT NUMBER: 3205-09-0995.01	TOTAL DEPTH: 12'

DEPTH	SAMPLE NUMBER	SAMPLE RECOVERY	PID READING (ppm)	MOISTURE CONTENT	LITHOLOGY	REMARKS
0					Asphalt and gravel	Base coarse gravel was dry
1			0.0	Dry	FILL: Grey and brown silty clay with trace sand and gravel	Soil Sample SB-3-A at 2.0-4.0' bgs
2		5'	0.0	Slightly Moist	FILL/TOPSOIL: Black clayey silt with little gravel	
3				Slightly Moist	Dark gray to greenish gray silty clay with trace gravel	
4			0.0			
5				Dry	Brown and grey silty clay with trace sand	Soil Sample SB-3-B at 5.0-7.5' bgs Driller reported drilling resistance due to stiff clay from 7.0-9.0 ft bgs
6			0.0			
7		5'			Brown and grey silty clay with trace to little gravel and trace sand	
8			0.0	Dry to Slightly Moist		
9						
10			0.0			Soil Sample SB-3-C at 10.0-12.0' bgs
11		2'				
12					Boring terminated at 12' below ground surface (bgs)	
13						
14						
15						
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17						
18						
19						
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21						
22						
23						
24						
25						

Prepared By: MV 1/11/10
Checked By: AEH 1/13/10

Appendix B
Laboratory Data

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202-0

December 04, 2009

MACTEC Engineering and Consulting, Inc.

8745 W. Higgins Rd.

Suite 300

Chicago, IL 60631

Telephone: (773) 693-6030

Fax: (773) 693-6039

RE: 3205090995.01, PBC-Garvy School, Chicago, IL

STAT Project No 09111033

Dear Andrew E. Hastings:

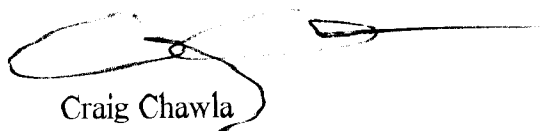
STAT Analysis received 9 samples for the referenced project on 11/27/2009 1:00:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAC standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Craig Chawla

Project Manager

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory.

Client: MACTEC Engineering and Consulting, Inc.
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab Order: 09111033

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
09111033-001A	SB-1-A		11/27/2009 9:40:00 AM	11/27/2009
09111033-001B	SB-1-A		11/27/2009 9:40:00 AM	11/27/2009
09111033-002A	SB-1-B		11/27/2009 9:45:00 AM	11/27/2009
09111033-002B	SB-1-B		11/27/2009 9:45:00 AM	11/27/2009
09111033-003A	SB-1-C		11/27/2009 9:55:00 AM	11/27/2009
09111033-003B	SB-1-C		11/27/2009 9:55:00 AM	11/27/2009
09111033-004A	SB-2-A		11/27/2009 10:20:00 AM	11/27/2009
09111033-004B	SB-2-A		11/27/2009 10:20:00 AM	11/27/2009
09111033-005A	SB-2-B		11/27/2009 10:30:00 AM	11/27/2009
09111033-005B	SB-2-B		11/27/2009 10:30:00 AM	11/27/2009
09111033-006A	SB-2-C		11/27/2009 10:40:00 AM	11/27/2009
09111033-006B	SB-2-C		11/27/2009 10:40:00 AM	11/27/2009
09111033-007A	SB-3-A		11/27/2009 11:10:00 AM	11/27/2009
09111033-007B	SB-3-A		11/27/2009 11:10:00 AM	11/27/2009
09111033-008A	SB-3-B		11/27/2009 11:25:00 AM	11/27/2009
09111033-008B	SB-3-B		11/27/2009 11:25:00 AM	11/27/2009
09111033-009A	SB-3-C		11/27/2009 11:35:00 AM	11/27/2009
09111033-009B	SB-3-C		11/27/2009 11:35:00 AM	11/27/2009

CLIENT: MACTEC Engineering and Consulting, Inc
Project: 3205090995.01, PBC-Garvy School, Chicago, I
Lab Order: 09111033

CASE NARRATIVE

The VOC soil LCS/LCSD analyzed 12/03/09 had RPD for Methyl tert-butyl ether outside of control limits (31% RPD, QC Limit <20%). Recoveries were within control limits.

The metals MS/MSD prepared from sample SB-1-C (09111033-003) had Antimony recovery outside control limits (15%/19% (MS/MSD) recovery, QC limits 75-125%). The MS/MSD had recovery of other analytes outside of control limits, however the analyte concentration in the sample was greater than four times the spiking level for those elements.

The metals MS/MSD prepared from sample SB-1-C (09111033-003) had relative percent difference (RPD) outside of control limits for the following elements:

Aluminum: 20.2% RPD (QC limits <10%)

Antimony: 30.6% RPD (QC limits <10%)

Calcium: 22.3% RPD (QC limits <10%)

Recoveries were within control limits.

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: December 04, 2009

Date Printed: December 04, 2009

Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-003

Client Sample ID: SB-1-C
Collection Date: 11/27/2009 9:55:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
PCBs						
	SW8082 (SW3550B)				Prep Date: 11/30/2009	Analyst: GVC
Aroclor 1016	ND	0.096		mg/Kg-dry	1	11/30/2009
Aroclor 1221	ND	0.096		mg/Kg-dry	1	11/30/2009
Aroclor 1232	ND	0.096		mg/Kg-dry	1	11/30/2009
Aroclor 1242	ND	0.096		mg/Kg-dry	1	11/30/2009
Aroclor 1248	ND	0.096		mg/Kg-dry	1	11/30/2009
Aroclor 1254	ND	0.096		mg/Kg-dry	1	11/30/2009
Aroclor 1260	ND	0.096		mg/Kg-dry	1	11/30/2009
Pesticides						
	SW8081 (SW3550B)				Prep Date: 11/30/2009	Analyst: GVC
4,4'-DDD	ND	0.0019		mg/Kg-dry	1	11/30/2009
4,4'-DDE	ND	0.0019		mg/Kg-dry	1	11/30/2009
4,4'-DDT	ND	0.0019		mg/Kg-dry	1	11/30/2009
Aldrin	ND	0.0019		mg/Kg-dry	1	11/30/2009
alpha-BHC	ND	0.0019		mg/Kg-dry	1	11/30/2009
alpha-Chlordane	ND	0.0019		mg/Kg-dry	1	11/30/2009
beta-BHC	ND	0.0019		mg/Kg-dry	1	11/30/2009
Chlordane	ND	0.04		mg/Kg-dry	1	11/30/2009
delta-BHC	ND	0.0019		mg/Kg-dry	1	11/30/2009
Dieldrin	ND	0.0019		mg/Kg-dry	1	11/30/2009
Endosulfan I	ND	0.0019		mg/Kg-dry	1	11/30/2009
Endosulfan II	ND	0.0019		mg/Kg-dry	1	11/30/2009
Endosulfan sulfate	ND	0.0019		mg/Kg-dry	1	11/30/2009
Endrin	ND	0.0019		mg/Kg-dry	1	11/30/2009
Endrin aldehyde	ND	0.0019		mg/Kg-dry	1	11/30/2009
Endrin ketone	ND	0.0019		mg/Kg-dry	1	11/30/2009
gamma-BHC	ND	0.0019		mg/Kg-dry	1	11/30/2009
gamma-Chlordane	ND	0.0019		mg/Kg-dry	1	11/30/2009
Heptachlor	ND	0.0019		mg/Kg-dry	1	11/30/2009
Heptachlor epoxide	ND	0.0019		mg/Kg-dry	1	11/30/2009
Methoxychlor	ND	0.0019		mg/Kg-dry	1	11/30/2009
Toxaphene	ND	0.04		mg/Kg-dry	1	11/30/2009
Mercury						
	SW7471A				Prep Date: 12/1/2009	Analyst: VA
Mercury	ND	0.022		mg/Kg-dry	1	12/1/2009
Metals by ICP/MS						
	SW6020 (SW3050B)				Prep Date: 12/2/2009	Analyst: JG
Aluminum	12000	230		mg/Kg-dry	100	12/3/2009
Antimony	ND	2.3		mg/Kg-dry	10	12/3/2009
Arsenic	6.9	1.2		mg/Kg-dry	10	12/3/2009
Barium	60	1.2		mg/Kg-dry	10	12/3/2009

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

STAT Analysis Corporation

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Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: December 04, 2009

Date Printed: December 04, 2009

Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-003

Client Sample ID: SB-1-C
Collection Date: 11/27/2009 9:55:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020 (SW3050B)		Prep Date: 12/2/2009		Analyst: JG
Beryllium	ND	0.58		mg/Kg-dry	10	12/3/2009
Cadmium	ND	0.58		mg/Kg-dry	10	12/3/2009
Calcium	64000	690		mg/Kg-dry	100	12/3/2009
Chromium	20	1.2		mg/Kg-dry	10	12/3/2009
Cobalt	10	1.2		mg/Kg-dry	10	12/3/2009
Copper	24	2.9		mg/Kg-dry	10	12/3/2009
Iron	21000	35		mg/Kg-dry	10	12/3/2009
Lead	14	0.58		mg/Kg-dry	10	12/3/2009
Magnesium	31000	35		mg/Kg-dry	10	12/3/2009
Manganese	410	1.2		mg/Kg-dry	10	12/3/2009
Nickel	32	1.2		mg/Kg-dry	10	12/3/2009
Potassium	2400	35		mg/Kg-dry	10	12/3/2009
Selenium	ND	1.2		mg/Kg-dry	10	12/3/2009
Silver	ND	1.2		mg/Kg-dry	10	12/3/2009
Sodium	140	69		mg/Kg-dry	10	12/3/2009
Thallium	ND	1.2		mg/Kg-dry	10	12/3/2009
Vanadium	22	1.2		mg/Kg-dry	10	12/3/2009
Zinc	45	5.8		mg/Kg-dry	10	12/3/2009
Semivolatile Organic Compounds by GC/MS		SW8270C-SIM (SW3550B)		Prep Date: 11/28/2009		Analyst: VS
Acenaphthene	ND	0.027		mg/Kg-dry	1	12/4/2009
Acenaphthylene	ND	0.027		mg/Kg-dry	1	12/4/2009
Anthracene	ND	0.027		mg/Kg-dry	1	12/4/2009
Benz(a)anthracene	ND	0.027		mg/Kg-dry	1	12/4/2009
Benzo(a)pyrene	ND	0.027		mg/Kg-dry	1	12/4/2009
Benzo(b)fluoranthene	ND	0.027		mg/Kg-dry	1	12/4/2009
Benzo(g,h,i)perylene	ND	0.027		mg/Kg-dry	1	12/4/2009
Benzo(k)fluoranthene	ND	0.027		mg/Kg-dry	1	12/4/2009
Chrysene	ND	0.027		mg/Kg-dry	1	12/4/2009
Dibenz(a,h)anthracene	ND	0.027		mg/Kg-dry	1	12/4/2009
Fluoranthene	0.038	0.027		mg/Kg-dry	1	12/4/2009
Fluorene	ND	0.027		mg/Kg-dry	1	12/4/2009
Indeno(1,2,3-cd)pyrene	ND	0.027		mg/Kg-dry	1	12/4/2009
Naphthalene	ND	0.027		mg/Kg-dry	1	12/4/2009
Phenanthrene	ND	0.027		mg/Kg-dry	1	12/4/2009
Pyrene	0.029	0.027		mg/Kg-dry	1	12/4/2009
N-Nitrosodi-n-propylamine	ND	0.027		mg/Kg-dry	1	12/4/2009
Pentachlorophenol	ND	0.021		mg/Kg-dry	1	12/4/2009

Qualifiers:
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 E - Value above quantitation range
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Date Reported: December 04, 2009

Date Printed: December 04, 2009

Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-003

Client Sample ID: SB-1-C
Collection Date: 11/27/2009 9:55:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	SW8270C (SW3550B)			Prep Date: 11/28/2009		Analyst: HVH
Aniline	ND	0.18		mg/Kg-dry	1	11/30/2009
Benzidine	ND	0.18		mg/Kg-dry	1	11/30/2009
Benzoic acid	ND	0.85		mg/Kg-dry	1	11/30/2009
Benzyl alcohol	ND	0.18		mg/Kg-dry	1	11/30/2009
Bis(2-chloroethoxy)methane	ND	0.18		mg/Kg-dry	1	11/30/2009
Bis(2-chloroethyl)ether	ND	0.18		mg/Kg-dry	1	11/30/2009
Bis(2-ethylhexyl)phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Bromophenyl phenyl ether	ND	0.18		mg/Kg-dry	1	11/30/2009
Butyl benzyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
Carbazole	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Chloroaniline	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Chloro-3-methylphenol	ND	0.18		mg/Kg-dry	1	11/30/2009
2-Chloronaphthalene	ND	0.18		mg/Kg-dry	1	11/30/2009
2-Chlorophenol	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Chlorophenyl phenyl ether	ND	0.18		mg/Kg-dry	1	11/30/2009
Dibenzofuran	ND	0.18		mg/Kg-dry	1	11/30/2009
1,2-Dichlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
1,3-Dichlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
1,4-Dichlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
3,3'-Dichlorobenzidine	ND	0.35		mg/Kg-dry	1	11/30/2009
2,4-Dichlorophenol	ND	0.18		mg/Kg-dry	1	11/30/2009
Diethyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
2,4-Dimethylphenol	ND	0.18		mg/Kg-dry	1	11/30/2009
Dimethyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
4,6-Dinitro-2-methylphenol	ND	0.85		mg/Kg-dry	1	11/30/2009
2,4-Dinitrophenol	ND	0.85		mg/Kg-dry	1	11/30/2009
2,4-Dinitrotoluene	ND	0.18		mg/Kg-dry	1	11/30/2009
2,6-Dinitrotoluene	ND	0.18		mg/Kg-dry	1	11/30/2009
Di-n-butyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
Di-n-octyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
Hexachlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
Hexachlorobutadiene	ND	0.18		mg/Kg-dry	1	11/30/2009
Hexachlorocyclopentadiene	ND	0.18		mg/Kg-dry	1	11/30/2009
Hexachloroethane	ND	0.18		mg/Kg-dry	1	11/30/2009
Isophorone	ND	0.18		mg/Kg-dry	1	11/30/2009
2-Methylnaphthalene	ND	0.18		mg/Kg-dry	1	11/30/2009
2-Methylphenol	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Methylphenol	ND	0.18		mg/Kg-dry	1	11/30/2009

Qualifiers:	ND - Not Detected at the Reporting Limit	RL - Reporting / Quantitation Limit for the analysis
	J - Analyte detected below quantitation limits	S - Spike Recovery outside accepted recovery limits
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Date Reported: December 04, 2009

Date Printed: December 04, 2009

Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-003

Client Sample ID: SB-1-C
Collection Date: 11/27/2009 9:55:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
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Semivolatile Organic Compounds by GC/MS	SW8270C (SW3550B)				Prep Date: 11/28/2009	Analyst: HVH
2-Nitroaniline	ND	0.85		mg/Kg-dry	1	11/30/2009
3-Nitroaniline	ND	0.85		mg/Kg-dry	1	11/30/2009
4-Nitroaniline	ND	0.85		mg/Kg-dry	1	11/30/2009
2-Nitrophenol	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Nitrophenol	ND	0.85		mg/Kg-dry	1	11/30/2009
Nitrobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
N-Nitrosodimethylamine	ND	0.18		mg/Kg-dry	1	11/30/2009
N-Nitrosodiphenylamine	ND	0.18		mg/Kg-dry	1	11/30/2009
2, 2'-oxybis(1-Chloropropane)	ND	0.18		mg/Kg-dry	1	11/30/2009
Phenol	ND	0.18		mg/Kg-dry	1	11/30/2009
Pyridine	ND	0.18		mg/Kg-dry	1	11/30/2009
1,2,4-Trichlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
2,4,5-Trichlorophenol	ND	0.35		mg/Kg-dry	1	11/30/2009
2,4,6-Trichlorophenol	ND	0.18		mg/Kg-dry	1	11/30/2009

Volatile Organic Compounds by GC/MS	SW5035/8260B				Prep Date: 12/1/2009	Analyst: PS
Acetone	ND	0.096		mg/Kg-dry	1	12/3/2009
Benzene	ND	0.0064		mg/Kg-dry	1	12/3/2009
Bromodichloromethane	ND	0.0064		mg/Kg-dry	1	12/3/2009
Bromoform	ND	0.0064		mg/Kg-dry	1	12/3/2009
Bromomethane	ND	0.013		mg/Kg-dry	1	12/3/2009
2-Butanone	ND	0.096		mg/Kg-dry	1	12/3/2009
Carbon disulfide	ND	0.064		mg/Kg-dry	1	12/3/2009
Carbon tetrachloride	ND	0.0064		mg/Kg-dry	1	12/3/2009
Chlorobenzene	ND	0.0064		mg/Kg-dry	1	12/3/2009
Chloroethane	ND	0.013		mg/Kg-dry	1	12/3/2009
Chloroform	ND	0.0064		mg/Kg-dry	1	12/3/2009
Chloromethane	ND	0.013		mg/Kg-dry	1	12/3/2009
Dibromochloromethane	ND	0.0064		mg/Kg-dry	1	12/3/2009
1,1-Dichloroethane	ND	0.0064		mg/Kg-dry	1	12/3/2009
1,2-Dichloroethane	ND	0.0064		mg/Kg-dry	1	12/3/2009
1,1-Dichloroethene	ND	0.0064		mg/Kg-dry	1	12/3/2009
cis-1,2-Dichloroethene	ND	0.0064		mg/Kg-dry	1	12/3/2009
trans-1,2-Dichloroethene	ND	0.0064		mg/Kg-dry	1	12/3/2009
1,2-Dichloropropane	ND	0.0064		mg/Kg-dry	1	12/3/2009
cis-1,3-Dichloropropene	ND	0.0026		mg/Kg-dry	1	12/3/2009
trans-1,3-Dichloropropene	ND	0.0026		mg/Kg-dry	1	12/3/2009
Ethylbenzene	ND	0.0064		mg/Kg-dry	1	12/3/2009
2-Hexanone	ND	0.026		mg/Kg-dry	1	12/3/2009

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Date Reported: December 04, 2009

Date Printed: December 04, 2009

Client: MACTEC Engineering and Consulting, Inc
 Lab Order: 09111033
 Project: 3205090995.01, PBC-Garvy School, Chicago, IL
 Lab ID: 09111033-003

Client Sample ID: SB-1-C
 Collection Date: 11/27/2009 9:55:00 AM
 Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	SW5035/8260B		Prep Date: 12/1/2009		Analyst: PS	
4-Methyl-2-pentanone	ND	0.026		mg/Kg-dry	1	12/3/2009
Methylene chloride	ND	0.013		mg/Kg-dry	1	12/3/2009
Methyl tert-butyl ether	ND	0.0064		mg/Kg-dry	1	12/3/2009
Styrene	ND	0.0064		mg/Kg-dry	1	12/3/2009
1,1,2,2-Tetrachloroethane	ND	0.0064		mg/Kg-dry	1	12/3/2009
Tetrachloroethene	ND	0.0064		mg/Kg-dry	1	12/3/2009
Toluene	ND	0.0064		mg/Kg-dry	1	12/3/2009
1,1,1-Trichloroethane	ND	0.0064		mg/Kg-dry	1	12/3/2009
1,1,2-Trichloroethane	ND	0.0064		mg/Kg-dry	1	12/3/2009
Trichloroethene	ND	0.0064		mg/Kg-dry	1	12/3/2009
Vinyl chloride	ND	0.0064		mg/Kg-dry	1	12/3/2009
Xylenes, Total	ND	0.019		mg/Kg-dry	1	12/3/2009
Cyanide, Total	SW9012A		Prep Date: 12/1/2009		Analyst: BPJ	
Cyanide	ND	0.3		mg/Kg-dry	1	12/1/2009
pH (25 °C)	SW9045C		Prep Date: 11/30/2009		Analyst: MNG	
pH	8.2			pH Units	1	11/30/2009
Percent Moisture	D2974		Prep Date: 11/30/2009		Analyst: JP	
Percent Moisture	16.5	0.2	*	wt%	1	12/1/2009

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Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-004

Client Sample ID: SB-2-A
Collection Date: 11/27/2009 10:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
PCBs						
	SW8082 (SW3550B)			Prep Date: 11/30/2009		Analyst: GVC
Aroclor 1016	ND	0.098		mg/Kg-dry	1	11/30/2009
Aroclor 1221	ND	0.098		mg/Kg-dry	1	11/30/2009
Aroclor 1232	ND	0.098		mg/Kg-dry	1	11/30/2009
Aroclor 1242	ND	0.098		mg/Kg-dry	1	11/30/2009
Aroclor 1248	ND	0.098		mg/Kg-dry	1	11/30/2009
Aroclor 1254	ND	0.098		mg/Kg-dry	1	11/30/2009
Aroclor 1260	ND	0.098		mg/Kg-dry	1	11/30/2009
Pesticides						
	SW8081 (SW3550B)			Prep Date: 11/30/2009		Analyst: GVC
4,4'-DDD	ND	0.002		mg/Kg-dry	1	11/30/2009
4,4'-DDE	ND	0.002		mg/Kg-dry	1	11/30/2009
4,4'-DDT	ND	0.002		mg/Kg-dry	1	11/30/2009
Aldrin	ND	0.002		mg/Kg-dry	1	11/30/2009
alpha-BHC	ND	0.002		mg/Kg-dry	1	11/30/2009
alpha-Chlordane	ND	0.002		mg/Kg-dry	1	11/30/2009
beta-BHC	ND	0.002		mg/Kg-dry	1	11/30/2009
Chlordane	ND	0.041		mg/Kg-dry	1	11/30/2009
delta-BHC	ND	0.002		mg/Kg-dry	1	11/30/2009
Dieldrin	ND	0.002		mg/Kg-dry	1	11/30/2009
Endosulfan I	ND	0.002		mg/Kg-dry	1	11/30/2009
Endosulfan II	ND	0.002		mg/Kg-dry	1	11/30/2009
Endosulfan sulfate	ND	0.002		mg/Kg-dry	1	11/30/2009
Endrin	ND	0.002		mg/Kg-dry	1	11/30/2009
Endrin aldehyde	ND	0.002		mg/Kg-dry	1	11/30/2009
Endrin ketone	ND	0.002		mg/Kg-dry	1	11/30/2009
gamma-BHC	ND	0.002		mg/Kg-dry	1	11/30/2009
gamma-Chlordane	ND	0.002		mg/Kg-dry	1	11/30/2009
Heptachlor	ND	0.002		mg/Kg-dry	1	11/30/2009
Heptachlor epoxide	ND	0.002		mg/Kg-dry	1	11/30/2009
Methoxychlor	ND	0.002		mg/Kg-dry	1	11/30/2009
Toxaphene	ND	0.041		mg/Kg-dry	1	11/30/2009
Mercury						
	SW7471A			Prep Date: 12/1/2009		Analyst: VA
Mercury	0.031	0.024		mg/Kg-dry	1	12/1/2009
Metals by ICP/MS						
	SW6020 (SW3050B)			Prep Date: 12/2/2009		Analyst: JG
Aluminum	12000	230		mg/Kg-dry	100	12/3/2009
Antimony	ND	2.3		mg/Kg-dry	10	12/3/2009
Arsenic	12	1.1		mg/Kg-dry	10	12/3/2009
Barium	110	1.1		mg/Kg-dry	10	12/3/2009

Qualifiers: ND - Not Detected at the Reporting Limit
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Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-004

Client Sample ID: SB-2-A
Collection Date: 11/27/2009 10:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020 (SW3050B)		Prep Date: 12/2/2009		Analyst: JG
Beryllium	ND	0.57		mg/Kg-dry	10	12/3/2009
Cadmium	ND	0.57		mg/Kg-dry	10	12/3/2009
Calcium	3100	69		mg/Kg-dry	10	12/3/2009
Chromium	21	1.1		mg/Kg-dry	10	12/3/2009
Cobalt	17	1.1		mg/Kg-dry	10	12/3/2009
Copper	20	2.9		mg/Kg-dry	10	12/3/2009
Iron	28000	34		mg/Kg-dry	10	12/3/2009
Lead	25	0.57		mg/Kg-dry	10	12/3/2009
Magnesium	4100	34		mg/Kg-dry	10	12/3/2009
Manganese	1100	11		mg/Kg-dry	100	12/3/2009
Nickel	33	1.1		mg/Kg-dry	10	12/3/2009
Potassium	1700	34		mg/Kg-dry	10	12/3/2009
Selenium	ND	1.1		mg/Kg-dry	10	12/3/2009
Silver	ND	1.1		mg/Kg-dry	10	12/3/2009
Sodium	390	69		mg/Kg-dry	10	12/3/2009
Thallium	ND	1.1		mg/Kg-dry	10	12/3/2009
Vanadium	32	1.1		mg/Kg-dry	10	12/3/2009
Zinc	49	5.7		mg/Kg-dry	10	12/3/2009
Semivolatile Organic Compounds by GC/MS		SW8270C-SIM (SW3550B)		Prep Date: 11/28/2009		Analyst: VS
Acenaphthene	ND	0.027		mg/Kg-dry	1	12/4/2009
Acenaphthylene	ND	0.027		mg/Kg-dry	1	12/4/2009
Anthracene	0.031	0.027		mg/Kg-dry	1	12/4/2009
Benz(a)anthracene	0.16	0.027		mg/Kg-dry	1	12/4/2009
Benzo(a)pyrene	0.16	0.027		mg/Kg-dry	1	12/4/2009
Benzo(b)fluoranthene	0.19	0.027		mg/Kg-dry	1	12/4/2009
Benzo(g,h,i)perylene	0.066	0.027		mg/Kg-dry	1	12/4/2009
Benzo(k)fluoranthene	0.11	0.027		mg/Kg-dry	1	12/4/2009
Chrysene	0.16	0.027		mg/Kg-dry	1	12/4/2009
Dibenz(a,h)anthracene	0.034	0.027		mg/Kg-dry	1	12/4/2009
Fluoranthene	0.33	0.027		mg/Kg-dry	1	12/4/2009
Fluorene	ND	0.027		mg/Kg-dry	1	12/4/2009
Indeno(1,2,3-cd)pyrene	0.069	0.027		mg/Kg-dry	1	12/4/2009
Naphthalene	ND	0.027		mg/Kg-dry	1	12/4/2009
Phenanthrene	0.17	0.027		mg/Kg-dry	1	12/4/2009
Pyrene	0.29	0.027		mg/Kg-dry	1	12/4/2009
N-Nitrosodi-n-propylamine	ND	0.027		mg/Kg-dry	1	12/4/2009
Pentachlorophenol	ND	0.027		mg/Kg-dry	1	12/4/2009

Qualifiers: ND - Not Detected at the Reporting Limit
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 HT - Sample received past holding time
 * - Non-accredited parameter

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STAT Analysis Corporation

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: December 04, 2009

Date Printed: December 04, 2009

Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-004

Client Sample ID: SB-2-A
Collection Date: 11/27/2009 10:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	SW8270C (SW3550B)			Prep Date: 11/28/2009		Analyst: HVH
Aniline	ND	0.18		mg/Kg-dry	1	11/30/2009
Benzidine	ND	0.18		mg/Kg-dry	1	11/30/2009
Benzoic acid	ND	0.87		mg/Kg-dry	1	11/30/2009
Benzyl alcohol	ND	0.18		mg/Kg-dry	1	11/30/2009
Bis(2-chloroethoxy)methane	ND	0.18		mg/Kg-dry	1	11/30/2009
Bis(2-chloroethyl)ether	ND	0.18		mg/Kg-dry	1	11/30/2009
Bis(2-ethylhexyl)phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Bromophenyl phenyl ether	ND	0.18		mg/Kg-dry	1	11/30/2009
Butyl benzyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
Carbazole	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Chloroaniline	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Chloro-3-methylphenol	ND	0.18		mg/Kg-dry	1	11/30/2009
2-Chloronaphthalene	ND	0.18		mg/Kg-dry	1	11/30/2009
2-Chlorophenol	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Chlorophenyl phenyl ether	ND	0.18		mg/Kg-dry	1	11/30/2009
Dibenzofuran	ND	0.18		mg/Kg-dry	1	11/30/2009
1,2-Dichlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
1,3-Dichlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
1,4-Dichlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
3,3'-Dichlorobenzidine	ND	0.36		mg/Kg-dry	1	11/30/2009
2,4-Dichlorophenol	ND	0.18		mg/Kg-dry	1	11/30/2009
Diethyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
2,4-Dimethylphenol	ND	0.18		mg/Kg-dry	1	11/30/2009
Dimethyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
4,6-Dinitro-2-methylphenol	ND	0.87		mg/Kg-dry	1	11/30/2009
2,4-Dinitrophenol	ND	0.87		mg/Kg-dry	1	11/30/2009
2,4-Dinitrotoluene	ND	0.18		mg/Kg-dry	1	11/30/2009
2,6-Dinitrotoluene	ND	0.18		mg/Kg-dry	1	11/30/2009
Di-n-butyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
Di-n-octyl phthalate	ND	0.18		mg/Kg-dry	1	11/30/2009
Hexachlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
Hexachlorobutadiene	ND	0.18		mg/Kg-dry	1	11/30/2009
Hexachlorocyclopentadiene	ND	0.18		mg/Kg-dry	1	11/30/2009
Hexachloroethane	ND	0.18		mg/Kg-dry	1	11/30/2009
Isophorone	ND	0.18		mg/Kg-dry	1	11/30/2009
2-Methylnaphthalene	ND	0.18		mg/Kg-dry	1	11/30/2009
2-Methylphenol	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Methylphenol	ND	0.18		mg/Kg-dry	1	11/30/2009

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Date Reported: December 04, 2009

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Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-004

Client Sample ID: SB-2-A
Collection Date: 11/27/2009 10:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS		SW8270C (SW3550B)		Prep Date: 11/28/2009		Analyst: HVH
2-Nitroaniline	ND	0.87		mg/Kg-dry	1	11/30/2009
3-Nitroaniline	ND	0.87		mg/Kg-dry	1	11/30/2009
4-Nitroaniline	ND	0.87		mg/Kg-dry	1	11/30/2009
2-Nitrophenol	ND	0.18		mg/Kg-dry	1	11/30/2009
4-Nitrophenol	ND	0.87		mg/Kg-dry	1	11/30/2009
Nitrobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
N-Nitrosodimethylamine	ND	0.18		mg/Kg-dry	1	11/30/2009
N-Nitrosodiphenylamine	ND	0.18		mg/Kg-dry	1	11/30/2009
2, 2'-oxybis(1-Chloropropane)	ND	0.18		mg/Kg-dry	1	11/30/2009
Phenol	ND	0.18		mg/Kg-dry	1	11/30/2009
Pyridine	ND	0.18		mg/Kg-dry	1	11/30/2009
1,2,4-Trichlorobenzene	ND	0.18		mg/Kg-dry	1	11/30/2009
2,4,5-Trichlorophenol	ND	0.36		mg/Kg-dry	1	11/30/2009
2,4,6-Trichlorophenol	ND	0.18		mg/Kg-dry	1	11/30/2009
Volatile Organic Compounds by GC/MS		SW5035/8260B		Prep Date: 12/1/2009		Analyst: PS
Acetone	ND	0.089		mg/Kg-dry	1	12/3/2009
Benzene	ND	0.0059		mg/Kg-dry	1	12/3/2009
Bromodichloromethane	ND	0.0059		mg/Kg-dry	1	12/3/2009
Bromoform	ND	0.0059		mg/Kg-dry	1	12/3/2009
Bromomethane	ND	0.012		mg/Kg-dry	1	12/3/2009
2-Butanone	ND	0.089		mg/Kg-dry	1	12/3/2009
Carbon disulfide	ND	0.059		mg/Kg-dry	1	12/3/2009
Carbon tetrachloride	ND	0.0059		mg/Kg-dry	1	12/3/2009
Chlorobenzene	ND	0.0059		mg/Kg-dry	1	12/3/2009
Chloroethane	ND	0.012		mg/Kg-dry	1	12/3/2009
Chloroform	ND	0.0059		mg/Kg-dry	1	12/3/2009
Chloromethane	ND	0.012		mg/Kg-dry	1	12/3/2009
Dibromochloromethane	ND	0.0059		mg/Kg-dry	1	12/3/2009
1,1-Dichloroethane	ND	0.0059		mg/Kg-dry	1	12/3/2009
1,2-Dichloroethane	ND	0.0059		mg/Kg-dry	1	12/3/2009
1,1-Dichloroethene	ND	0.0059		mg/Kg-dry	1	12/3/2009
cis-1,2-Dichloroethene	ND	0.0059		mg/Kg-dry	1	12/3/2009
trans-1,2-Dichloroethene	ND	0.0059		mg/Kg-dry	1	12/3/2009
1,2-Dichloropropane	ND	0.0059		mg/Kg-dry	1	12/3/2009
cis-1,3-Dichloropropene	ND	0.0024		mg/Kg-dry	1	12/3/2009
trans-1,3-Dichloropropene	ND	0.0024		mg/Kg-dry	1	12/3/2009
Ethylbenzene	ND	0.0059		mg/Kg-dry	1	12/3/2009
2-Hexanone	ND	0.024		mg/Kg-dry	1	12/3/2009

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Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-004

Client Sample ID: SB-2-A
Collection Date: 11/27/2009 10:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	SW5035/8260B				Prep Date: 12/1/2009	Analyst: PS
4-Methyl-2-pentanone	ND	0.024		mg/Kg-dry	1	12/3/2009
Methylene chloride	ND	0.012		mg/Kg-dry	1	12/3/2009
Methyl tert-butyl ether	ND	0.0059		mg/Kg-dry	1	12/3/2009
Styrene	ND	0.0059		mg/Kg-dry	1	12/3/2009
1,1,2,2-Tetrachloroethane	ND	0.0059		mg/Kg-dry	1	12/3/2009
Tetrachloroethene	ND	0.0059		mg/Kg-dry	1	12/3/2009
Toluene	ND	0.0059		mg/Kg-dry	1	12/3/2009
1,1,1-Trichloroethane	ND	0.0059		mg/Kg-dry	1	12/3/2009
1,1,2-Trichloroethane	ND	0.0059		mg/Kg-dry	1	12/3/2009
Trichloroethene	ND	0.0059		mg/Kg-dry	1	12/3/2009
Vinyl chloride	ND	0.0059		mg/Kg-dry	1	12/3/2009
Xylenes, Total	ND	0.018		mg/Kg-dry	1	12/3/2009
Cyanide, Total	SW9012A				Prep Date: 12/1/2009	Analyst: BPJ
Cyanide	ND	0.31		mg/Kg-dry	1	12/1/2009
pH (25 °C)	SW9045C				Prep Date: 11/30/2009	Analyst: MNG
pH	7.5			pH Units	1	11/30/2009
Percent Moisture	D2974				Prep Date: 11/30/2009	Analyst: JP
Percent Moisture	18.6	0.2	*	wt%	1	12/1/2009

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Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-007

Client Sample ID: SB-3-A
Collection Date: 11/27/2009 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
PCBs						
	SW8082 (SW3550B)			Prep Date: 11/30/2009		Analyst: GVC
Aroclor 1016	ND	0.1		mg/Kg-dry	1	11/30/2009
Aroclor 1221	ND	0.1		mg/Kg-dry	1	11/30/2009
Aroclor 1232	ND	0.1		mg/Kg-dry	1	11/30/2009
Aroclor 1242	ND	0.1		mg/Kg-dry	1	11/30/2009
Aroclor 1248	ND	0.1		mg/Kg-dry	1	11/30/2009
Aroclor 1254	ND	0.1		mg/Kg-dry	1	11/30/2009
Aroclor 1260	ND	0.1		mg/Kg-dry	1	11/30/2009
Pesticides						
	SW8081 (SW3550B)			Prep Date: 11/30/2009		Analyst: GVC
4,4'-DDD	ND	0.0021		mg/Kg-dry	1	11/30/2009
4,4'-DDE	ND	0.0021		mg/Kg-dry	1	11/30/2009
4,4'-DDT	ND	0.0021		mg/Kg-dry	1	11/30/2009
Aldrin	ND	0.0021		mg/Kg-dry	1	11/30/2009
alpha-BHC	ND	0.0021		mg/Kg-dry	1	11/30/2009
alpha-Chlordane	ND	0.0021		mg/Kg-dry	1	11/30/2009
beta-BHC	ND	0.0021		mg/Kg-dry	1	11/30/2009
Chlordane	ND	0.042		mg/Kg-dry	1	11/30/2009
delta-BHC	ND	0.0021		mg/Kg-dry	1	11/30/2009
Dieldrin	ND	0.0021		mg/Kg-dry	1	11/30/2009
Endosulfan I	ND	0.0021		mg/Kg-dry	1	11/30/2009
Endosulfan II	ND	0.0021		mg/Kg-dry	1	11/30/2009
Endosulfan sulfate	ND	0.0021		mg/Kg-dry	1	11/30/2009
Endrin	ND	0.0021		mg/Kg-dry	1	11/30/2009
Endrin aldehyde	ND	0.0021		mg/Kg-dry	1	11/30/2009
Endrin ketone	ND	0.0021		mg/Kg-dry	1	11/30/2009
gamma-BHC	ND	0.0021		mg/Kg-dry	1	11/30/2009
gamma-Chlordane	ND	0.0021		mg/Kg-dry	1	11/30/2009
Heptachlor	ND	0.0021		mg/Kg-dry	1	11/30/2009
Heptachlor epoxide	ND	0.0021		mg/Kg-dry	1	11/30/2009
Methoxychlor	ND	0.0021		mg/Kg-dry	1	11/30/2009
Toxaphene	ND	0.042		mg/Kg-dry	1	11/30/2009
Mercury						
	SW7471A			Prep Date: 12/1/2009		Analyst: VA
Mercury	0.037	0.025		mg/Kg-dry	1	12/1/2009
Metals by ICP/MS						
	SW6020 (SW3050B)			Prep Date: 12/2/2009		Analyst: JG
Aluminum	19000	250		mg/Kg-dry	100	12/3/2009
Antimony	ND	2.5		mg/Kg-dry	10	12/3/2009
Arsenic	7.2	1.2		mg/Kg-dry	10	12/3/2009
Barium	230	1.2		mg/Kg-dry	10	12/3/2009

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Date Reported: December 04, 2009

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Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-007

Client Sample ID: SB-3-A
Collection Date: 11/27/2009 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
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Metals by ICP/MS**SW6020 (SW3050B)**

Prep Date: 12/2/2009

Analyst: JG

Beryllium	0.95	0.62		mg/Kg-dry	10	12/3/2009
Cadmium	ND	0.62		mg/Kg-dry	10	12/3/2009
Calcium	6100	75		mg/Kg-dry	10	12/3/2009
Chromium	29	1.2		mg/Kg-dry	10	12/3/2009
Cobalt	13	1.2		mg/Kg-dry	10	12/3/2009
Copper	24	3.1		mg/Kg-dry	10	12/3/2009
Iron	30000	37		mg/Kg-dry	10	12/3/2009
Lead	24	0.62		mg/Kg-dry	10	12/3/2009
Magnesium	6500	37		mg/Kg-dry	10	12/3/2009
Manganese	1200	1.2		mg/Kg-dry	10	12/3/2009
Nickel	34	1.2		mg/Kg-dry	10	12/3/2009
Potassium	1800	37		mg/Kg-dry	10	12/3/2009
Selenium	ND	1.2		mg/Kg-dry	10	12/3/2009
Silver	ND	1.2		mg/Kg-dry	10	12/3/2009
Sodium	130	75		mg/Kg-dry	10	12/3/2009
Thallium	ND	1.2		mg/Kg-dry	10	12/3/2009
Vanadium	43	1.2		mg/Kg-dry	10	12/3/2009
Zinc	62	6.2		mg/Kg-dry	10	12/3/2009

Semivolatile Organic Compounds by GC/MS**SW8270C-SIM (SW3550B)**

Prep Date: 11/28/2009

Analyst: VS

Acenaphthene	ND	0.029		mg/Kg-dry	1	12/4/2009
Acenaphthylene	ND	0.029		mg/Kg-dry	1	12/4/2009
Anthracene	ND	0.029		mg/Kg-dry	1	12/4/2009
Benz(a)anthracene	ND	0.029		mg/Kg-dry	1	12/4/2009
Benzo(a)pyrene	ND	0.029		mg/Kg-dry	1	12/4/2009
Benzo(b)fluoranthene	ND	0.029		mg/Kg-dry	1	12/4/2009
Benzo(g,h,i)perylene	ND	0.029		mg/Kg-dry	1	12/4/2009
Benzo(k)fluoranthene	ND	0.029		mg/Kg-dry	1	12/4/2009
Chrysene	ND	0.029		mg/Kg-dry	1	12/4/2009
Dibenz(a,h)anthracene	ND	0.029		mg/Kg-dry	1	12/4/2009
Fluoranthene	ND	0.029		mg/Kg-dry	1	12/4/2009
Fluorene	ND	0.029		mg/Kg-dry	1	12/4/2009
Indeno(1,2,3-cd)pyrene	ND	0.029		mg/Kg-dry	1	12/4/2009
Naphthalene	ND	0.029		mg/Kg-dry	1	12/4/2009
Phenanthrene	ND	0.029		mg/Kg-dry	1	12/4/2009
Pyrene	ND	0.029		mg/Kg-dry	1	12/4/2009
N-Nitrosodi-n-propylamine	ND	0.029		mg/Kg-dry	1	12/4/2009
Pentachlorophenol	ND	0.029		mg/Kg-dry	1	12/4/2009

Qualifiers:
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Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-007

Client Sample ID: SB-3-A
Collection Date: 11/27/2009 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	SW8270C (SW3550B)			Prep Date: 11/28/2009		Analyst: HVH
Aniline	ND	0.19		mg/Kg-dry	1	11/30/2009
Benzidine	ND	0.19		mg/Kg-dry	1	11/30/2009
Benzoic acid	ND	0.94		mg/Kg-dry	1	11/30/2009
Benzyl alcohol	ND	0.19		mg/Kg-dry	1	11/30/2009
Bis(2-chloroethoxy)methane	ND	0.19		mg/Kg-dry	1	11/30/2009
Bis(2-chloroethyl)ether	ND	0.19		mg/Kg-dry	1	11/30/2009
Bis(2-ethylhexyl)phthalate	ND	0.19		mg/Kg-dry	1	11/30/2009
4-Bromophenyl phenyl ether	ND	0.19		mg/Kg-dry	1	11/30/2009
Butyl benzyl phthalate	ND	0.19		mg/Kg-dry	1	11/30/2009
Carbazole	ND	0.19		mg/Kg-dry	1	11/30/2009
4-Chloroaniline	ND	0.19		mg/Kg-dry	1	11/30/2009
4-Chloro-3-methylphenol	ND	0.19		mg/Kg-dry	1	11/30/2009
2-Chloronaphthalene	ND	0.19		mg/Kg-dry	1	11/30/2009
2-Chlorophenol	ND	0.19		mg/Kg-dry	1	11/30/2009
4-Chlorophenyl phenyl ether	ND	0.19		mg/Kg-dry	1	11/30/2009
Dibenzofuran	ND	0.19		mg/Kg-dry	1	11/30/2009
1,2-Dichlorobenzene	ND	0.19		mg/Kg-dry	1	11/30/2009
1,3-Dichlorobenzene	ND	0.19		mg/Kg-dry	1	11/30/2009
1,4-Dichlorobenzene	ND	0.19		mg/Kg-dry	1	11/30/2009
3,3'-Dichlorobenzidine	ND	0.39		mg/Kg-dry	1	11/30/2009
2,4-Dichlorophenol	ND	0.19		mg/Kg-dry	1	11/30/2009
Diethyl phthalate	ND	0.19		mg/Kg-dry	1	11/30/2009
2,4-Dimethylphenol	ND	0.19		mg/Kg-dry	1	11/30/2009
Dimethyl phthalate	ND	0.19		mg/Kg-dry	1	11/30/2009
4,6-Dinitro-2-methylphenol	ND	0.94		mg/Kg-dry	1	11/30/2009
2,4-Dinitrophenol	ND	0.94		mg/Kg-dry	1	11/30/2009
2,4-Dinitrotoluene	ND	0.19		mg/Kg-dry	1	11/30/2009
2,6-Dinitrotoluene	ND	0.19		mg/Kg-dry	1	11/30/2009
Di-n-butyl phthalate	ND	0.19		mg/Kg-dry	1	11/30/2009
Di-n-octyl phthalate	ND	0.19		mg/Kg-dry	1	11/30/2009
Hexachlorobenzene	ND	0.19		mg/Kg-dry	1	11/30/2009
Hexachlorobutadiene	ND	0.19		mg/Kg-dry	1	11/30/2009
Hexachlorocyclopentadiene	ND	0.19		mg/Kg-dry	1	11/30/2009
Hexachloroethane	ND	0.19		mg/Kg-dry	1	11/30/2009
Isophorone	ND	0.19		mg/Kg-dry	1	11/30/2009
2-Methylnaphthalene	ND	0.19		mg/Kg-dry	1	11/30/2009
2-Methylphenol	ND	0.19		mg/Kg-dry	1	11/30/2009
4-Methylphenol	ND	0.19		mg/Kg-dry	1	11/30/2009

Qualifiers:	ND - Not Detected at the Reporting Limit	RL - Reporting / Quantitation Limit for the analysis
	J - Analyte detected below quantitation limits	S - Spike Recovery outside accepted recovery limits
	B - Analyte detected in the associated Method Blank	R - RPD outside accepted recovery limits
	HT - Sample received past holding time	E - Value above quantitation range
	* - Non-accredited parameter	H - Holding time exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: December 04, 2009

Date Printed: December 04, 2009

Client: MACTEC Engineering and Consulting, Inc
Lab Order: 09111033
Project: 3205090995.01, PBC-Garvy School, Chicago, IL
Lab ID: 09111033-007

Client Sample ID: SB-3-A
Collection Date: 11/27/2009 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS		SW8270C (SW3550B)		Prep Date: 11/28/2009		Analyst: HVH
2-Nitroaniline	ND	0.94		mg/Kg-dry	1	11/30/2009
3-Nitroaniline	ND	0.94		mg/Kg-dry	1	11/30/2009
4-Nitroaniline	ND	0.94		mg/Kg-dry	1	11/30/2009
2-Nitrophenol	ND	0.19		mg/Kg-dry	1	11/30/2009
4-Nitrophenol	ND	0.94		mg/Kg-dry	1	11/30/2009
Nitrobenzene	ND	0.19		mg/Kg-dry	1	11/30/2009
N-Nitrosodimethylamine	ND	0.19		mg/Kg-dry	1	11/30/2009
N-Nitrosodiphenylamine	ND	0.19		mg/Kg-dry	1	11/30/2009
2, 2'-oxybis(1-Chloropropane)	ND	0.19		mg/Kg-dry	1	11/30/2009
Phenol	ND	0.19		mg/Kg-dry	1	11/30/2009
Pyridine	ND	0.19		mg/Kg-dry	1	11/30/2009
1,2,4-Trichlorobenzene	ND	0.19		mg/Kg-dry	1	11/30/2009
2,4,5-Trichlorophenol	ND	0.39		mg/Kg-dry	1	11/30/2009
2,4,6-Trichlorophenol	ND	0.19		mg/Kg-dry	1	11/30/2009
Volatile Organic Compounds by GC/MS		SW5035/8260B		Prep Date: 12/1/2009		Analyst: PS
Acetone	ND	0.1		mg/Kg-dry	1	12/3/2009
Benzene	ND	0.0068		mg/Kg-dry	1	12/3/2009
Bromodichloromethane	ND	0.0068		mg/Kg-dry	1	12/3/2009
Bromoform	ND	0.0068		mg/Kg-dry	1	12/3/2009
Bromomethane	ND	0.014		mg/Kg-dry	1	12/3/2009
2-Butanone	ND	0.1		mg/Kg-dry	1	12/3/2009
Carbon disulfide	ND	0.068		mg/Kg-dry	1	12/3/2009
Carbon tetrachloride	ND	0.0068		mg/Kg-dry	1	12/3/2009
Chlorobenzene	ND	0.0068		mg/Kg-dry	1	12/3/2009
Chloroethane	ND	0.014		mg/Kg-dry	1	12/3/2009
Chloroform	ND	0.0068		mg/Kg-dry	1	12/3/2009
Chloromethane	ND	0.014		mg/Kg-dry	1	12/3/2009
Dibromochloromethane	ND	0.0068		mg/Kg-dry	1	12/3/2009
1,1-Dichloroethane	ND	0.0068		mg/Kg-dry	1	12/3/2009
1,2-Dichloroethane	ND	0.0068		mg/Kg-dry	1	12/3/2009
1,1-Dichloroethene	ND	0.0068		mg/Kg-dry	1	12/3/2009
cis-1,2-Dichloroethene	ND	0.0068		mg/Kg-dry	1	12/3/2009
trans-1,2-Dichloroethene	ND	0.0068		mg/Kg-dry	1	12/3/2009
1,2-Dichloropropane	ND	0.0068		mg/Kg-dry	1	12/3/2009
cis-1,3-Dichloropropene	ND	0.0027		mg/Kg-dry	1	12/3/2009
trans-1,3-Dichloropropene	ND	0.0027		mg/Kg-dry	1	12/3/2009
Ethylbenzene	ND	0.0068		mg/Kg-dry	1	12/3/2009
2-Hexanone	ND	0.027		mg/Kg-dry	1	12/3/2009

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 HT - Sample received past holding time
 * - Non-accredited parameter
 RL - Reporting / Quantitation Limit for the analysis
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range
 H - Holding time exceeded

STAT Analysis Corporation

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: December 04, 2009

Date Printed: December 04, 2009

Client: MACTEC Engineering and Consulting, Inc
 Lab Order: 09111033
 Project: 3205090995.01, PBC-Garvy School, Chicago, IL
 Lab ID: 09111033-007

Client Sample ID: SB-3-A
 Collection Date: 11/27/2009 11:10:00 AM
 Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	SW5035/8260B		Prep Date: 12/1/2009		Analyst: PS	
4-Methyl-2-pentanone	ND	0.027		mg/Kg-dry	1	12/3/2009
Methylene chloride	ND	0.014		mg/Kg-dry	1	12/3/2009
Methyl tert-butyl ether	ND	0.0068		mg/Kg-dry	1	12/3/2009
Styrene	ND	0.0068		mg/Kg-dry	1	12/3/2009
1,1,2,2-Tetrachloroethane	ND	0.0068		mg/Kg-dry	1	12/3/2009
Tetrachloroethene	ND	0.0068		mg/Kg-dry	1	12/3/2009
Toluene	ND	0.0068		mg/Kg-dry	1	12/3/2009
1,1,1-Trichloroethane	ND	0.0068		mg/Kg-dry	1	12/3/2009
1,1,2-Trichloroethane	ND	0.0068		mg/Kg-dry	1	12/3/2009
Trichloroethene	ND	0.0068		mg/Kg-dry	1	12/3/2009
Vinyl chloride	ND	0.0068		mg/Kg-dry	1	12/3/2009
Xylenes, Total	ND	0.02		mg/Kg-dry	1	12/3/2009
Cyanide, Total	SW9012A		Prep Date: 12/1/2009		Analyst: BPJ	
Cyanide	ND	0.32		mg/Kg-dry	1	12/1/2009
pH (25 °C)	SW9045C		Prep Date: 11/30/2009		Analyst: MNG	
pH	7.0			pH Units	1	11/30/2009
Percent Moisture	D2974		Prep Date: 11/30/2009		Analyst: JP	
Percent Moisture	22.3	0.2	*	wt%	1	12/1/2009

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 HT - Sample received past holding time
 * - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range
 H - Holding time exceeded

CHAIN OF CUSTODY RECORD

Company: MACTEC E+C		P.O. No.:						
Project Number: 3205040995.01		Quote No.:						
Project Name: PBC - Garry School								
Project Location: Chicago, IL								
Sampler(s): Andrew E. Hastings								
Report To: Max Dink								
Phone: 773-693-6030								
Fax: 773-693-6029								
e-mail: maxdink@mactec.com								
QC Level: 1 2 3 4								
Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp	Grab	Preserv	No. of Containers	Remarks
SB-1-A	11/27/09	9:40	Soil		X	F	4	HOLD
SB-1-B	↕	9:45	↕		X	F	4	HOLD
SB-1-C	↕	9:55	↕		X	F	4	
SB-2-A	↕	10:20	↕		X	F	4	
SB-2-B	↕	10:30	↕		X	F	4	
SB-2-C	↕	10:40	↕		X	F	4	
SB-3-A	↕	11:10	↕		X	F	4	
SB-3-B	↕	11:25	↕		X	F	4	
SB-3-C	11/27/09	11:35	Soil		X	F	4	
								Turn Around: 3h. (1.5 hr)
								Results Needed: am/pm
								Laboratory Work Order No. 09111033
								Received on Ice Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
								Temperature: 29 °C
Relinquished by: (Signature) <i>Andrew E. Hastings</i> Date/Time: 11/27/09 1:00 Received by: (Signature) <i>[Signature]</i> Date/Time: 11/27/09 1:00 Relinquished by: (Signature) Date/Time: Received by: (Signature) Date/Time: Relinquished by: (Signature) Date/Time: Received by: (Signature) Date/Time:								Comments: Note Holds. Run 3 samples for pH + TCL, held pending initial results.
Preservation Code: A = None B = HNO ₃ C = NaOH D = H ₂ SO ₄ E = HCl F = 5035/EnCore G = Other								

Sample Receipt Checklist

Client Name **MACTEC**

Date and Time Received: **11/27/2009 1:00:00 PM**

Work Order Number **09111033**

Received by: **DJ**

Checklist completed by:

Reviewed by:

[Handwritten Signature]
 Signature _____ Date **11/27/09**

CG 11/27/09
 Initials _____ Date _____

Matrix:

Carrier name: Client Delivered

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels/containers? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container or Temp Blank temperature in compliance? Yes No Temperature **2.9 °C**
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Samples pH checked? Yes No Checked by: _____
- Water - Samples properly preserved? Yes No pH Adjusted? _____

Any No response must be detailed in the comments section below.

Comments:


Client / Person contacted:


Date contacted:

Contacted by:


Response:


Appendix C
Photographic Documentation


Photograph #1	Remarks
	<p>View facing southwest of location SB-1.</p>

Photograph #2	Remarks
	<p>View facing west of location SB-1. Boring is located at right-center.</p>

Photograph #3	Remarks
	<p>View of location SB-2 facing southwest.</p>

Photograph #4	Remarks
	<p>View of location SB-2 facing northwest.</p>

Photograph #5	Remarks
	<p>View of location SB-3 facing northwest and also showing location SB-2.</p>

Photograph #6	Remarks
	<p>View of location SB-3 facing north and also showing location SB-1.</p>



April 26, 2010

Mr. Richard J. Schleyer, P.E.
Environmental Program Manager, PMO
Public Building Commission of Chicago
Richard J. Daley Center, Room 200
50 West Washington Street
Chicago, Illinois 60602

**RE: Pre-Renovation Asbestos-Containing Material Survey Summary Report
John W. Garvy Elementary School
5225 North Oak Park Avenue
Chicago, Illinois 60656
Project No. E128340081-02**

Dear Mr. Schleyer:

Carnow, Conibear & Assoc., Ltd. (Carnow Conibear) was retained by the Public Building Commission of Chicago (PBCC) to perform an asbestos-containing material survey prior to renovation at Garvy Elementary School located at 5225 North Oak Park Avenue in Chicago, Illinois. The sampling was limited to suspect asbestos materials that may be disturbed during planned renovations (PBCC Project No. 05360). The main renovation area will include the Entrance Foyer and Corridors in the Main School, located just north of the Gym. In addition, it also appears the Gym storage area will be affected, and possibly part of the Gym as well. A new building will be tied into the existing structure at this location. Initial sampling was conducted on June 3, 2009 by Mr. Timothy Panfil, an Illinois Department of Public Health (IDPH) licensed asbestos building inspector (IDPH License No. 100-8751).

Carnow Conibear conducted a second site visit April 12, 2010 after updated construction drawings indicated that additional areas of the existing structure may be affected during renovation. These locations include Rooms 111, 211, 213 and the main Corridors on the 1st and 2nd floors. In addition, new fire alarm devices are to be installed in various areas of the Main building and the modular unit is scheduled for removal or demolition.

The asbestos survey consisted of visually inspecting the interior and exterior of specific areas of the subject site to identify suspect asbestos-containing materials, collecting samples from suspect materials, analyzing samples for the presence of asbestos, and quantifying the identified asbestos-containing materials. In addition, the AHERA inspection report was reviewed.

The asbestos survey was conducted in two phases. The first phase of the survey consisted of a walkthrough inspection of the renovation areas to identify homogeneous areas (materials which are uniform in composition throughout) and to assess material condition. The second phase consisted of collecting representative bulk samples from the suspected asbestos-containing materials. All bulk samples were collected according to the Carnow Conibear's Standard Operating Procedures for Bulk Sampling manual. These procedures were developed in-house and are based on methods described in USEPA guidelines. The sample collected was stored in a sample bag with a unique sample identification number. A chain of custody (COC) form was signed and dated by the inspector, the delivering representative, and the laboratory representative who received the samples. All samples were submitted to STAT Analysis Corporation (STAT) for analysis.

STAT's laboratory is accredited for bulk asbestos fiber analysis by the National Voluntary Laboratory Accreditation Program (NVLAP). STAT utilized dispersion staining and polarized light microscopy (PLM) techniques for analyzing the samples consistent with U.S. EPA Method EPA-600/M4-82-020. PLM is the EPA's recognized method for determining bulk asbestos content.

Table I presents the results of the bulk sample analysis in the Main Building, material locations, and the estimated material quantity. Table II presents the results of the bulk sample analysis in the Modular Unit.

Table I
Garvy Elementary School: Asbestos Bulk Sample Laboratory Results
Main Building – At Connection Point
June 8, 2009 and April 12, 2010

<i>MATERIAL DESCRIPTION</i>	<i>MATERIAL LOCATION</i>	<i>LABORATORY RESULTS</i>	<i>APPROX. QUANTITY</i>
HA: K – Roof Field	Gym Roof	ND	NQ
HA: L -Roof Flashing	Gym Roof	ND	NQ
HA: M – 12x12 inch green and grey floor tile	Stairwell Next to Gym Stage	Chrysotile	75 SF
HA: N – black mastic for HA: M	Stairwell Next to Gym Stage	Chrysotile	75 SF
HA: O – Plaster Walls	Throughout Connection Point Area	ND	NQ
HA: P – Exterior Door Caulk	Exterior	ND	1 Door
HA: R – Exterior Window Caulk	Exterior	ND	1 window
HA: AA – 2x4 foot suspend Ceiling Tiles	1 st Floor Corridor and Rooms	ND	NQ
HA: 14 – 12x12 inch White w/ Tan Speck VFT (From AHERA Reinspection Report)	Room 109, 111, 1 st and 2 nd Floor Corridors – 1937 Building	ND	NQ
HA: 15 – 12x12 inch White w/ Tan Specks VFT (From AHERA Reinspection Report)	1st and 2nd Floor Corridors – 1951 Building	Chrysotile	5260 SF

MATERIAL DESCRIPTION	MATERIAL LOCATION	LABORATORY RESULTS	APPROX. QUANTITY
HA: 18 – 12x12 inch Tan VFT (From AHERA Reinspection Report)	NE Gym Vestibule – 1937 Building	Chrysotile	28 SF
HA: 19 – 12x12 inch Blue/Gray VFT (From AHERA Reinspection Report)	NE Gym Vestibule – 1937 Building	Chrysotile	28 SF
HA: 22 – 12x12 inch White w/ Tan Specks VFT Mastic (From AHERA Reinspection Report)	Room 109, 111, 1 st and 2 nd Floor Corridors – 1937 Building	Chrysotile	5130 SF
HA: 23 – 12x12 inch White w/ Tan Specks VFT (From AHERA Reinspection Report)	1 st and 2 nd Floor Corridors, Room 203, Main Office Entrance – 1951 Building	Chrysotile	5130 SF
HA: 26 – 12x12 inch Tan VFT Mastic (From AHERA Reinspection Report)	NE Gym Vestibule – 1937 Building	Chrysotile	28 SF
HA: 27 – 12x12 inch Blue/Gray VFT Mastic (From AHERA Reinspection Report)	NE Gym Vestibule – 1937 Building	Chrysotile	28 SF

The Occupational Safety and Health Administration (OSHA), IDPH, and EPA define an asbestos containing material as any material containing greater than 1 percent asbestos.

Because a destructive survey was not performed and the scope of work included only accessible areas, the possibility exists that some asbestos-containing materials were not included in this survey if they were concealed within walls or other operational mechanical equipment.

HA = Homogeneous Area

ND = Asbestos Not Detected

N/Q = Not Quantified

SF = Square Feet

Locations are provided for reference only. Materials may exist in other areas not noted.

Quantities listed are estimates of material in renovation areas only.

Table II
Garvy Elementary School: Asbestos Bulk Sample Laboratory Results
Modular Unit
March 23, 2010

MATERIAL DESCRIPTION	MATERIAL LOCATION	LABORATORY RESULTS	APPROX. QUANTITY
HA: A – 12x12 inch tan with brown speckled Floor Tile	Throughout	ND	NQ
HA: B – mastic for HA: A	Throughout	ND	NQ
HA: 107 – Vinyl Baseboard (From AHERA Reinspection Report)	Throughout	ND	NQ
HA E: mastic for 3 inch vinyl baseboards	Throughout Classrooms and Hallway	ND	NQ
HA: F – 6 inch white vinyl baseboard	Restrooms	ND	NQ
HA: G – mastic for HA: F	Restrooms	ND	NQ
HA: J – Roofing materials	Roof	ND	NQ
HA: Q – Exterior Door Caulk	Exterior	ND	NQ
HA: 102 – 12x12 inch Off White w/ Tan Specks VFT (From AHERA Reinspection Report)	301 – 304 and Store Rooms, Sprinkler Room, Men's and Women's Restrooms	ND	NQ

MATERIAL DESCRIPTION	MATERIAL LOCATION	LABORATORY RESULTS	APPROX. QUANTITY
HA: 103 – 12x12 inch Off White w/ Tan Specks VFT Mastic (From AHERA Reinspection Report)	301 – 304 and Store Rooms, Sprinkler Room, Men’s and Women’s Restrooms	ND	NQ
HA: 104 – 2x2 foot Ceiling Tile (From AHERA Reinspection Report)	301 – 304 and Store Rooms	ND	NQ
HA: 105 – Drywall (From AHERA Reinspection Report)	Throughout	ND	NQ
HA: 106 – Drywall Compound (From AHERA Reinspection Report)	Throughout	ND	NQ
HA: 107 – Vinyl Baseboard (From AHERA Reinspection Report)	Throughout	ND	NQ
HA: 108 – Vinyl Baseboard Mastic (From AHERA Reinspection Report)	Throughout	ND	NQ
HA: 109 – Textured Drywall (From AHERA Reinspection Report)	Sprinkler Room, Men’s and Women’s Toilets	ND	NQ
HA: 110 – Textured Drywall and Joint Compound (From AHERA Reinspection Report)	Throughout	ND	NQ

Conclusions

Based on the sample results, Carnow Conibear recommends the following:

- Incorporate data from this report into the asbestos records and future demolition/renovation documents.
- Consult this report and the AHERA Asbestos Reinspection report in Attachment A before demolition/renovation activities.
- If suspect asbestos-containing materials not sampled during the survey are discovered, the materials should be assumed to contain asbestos until proven otherwise by laboratory sample analysis or manufacturer data and added to the asbestos records.
- The following table includes asbestos containing materials that may be affected during the demolition/renovation.

MATERIAL DESCRIPTION	MATERIAL LOCATION	LABORATORY RESULTS	APPROX. QUANTITY
HA: M – 12x12 inch green and grey floor tile	Stairwell Next to Gym Stage	Chrysotile	75 SF
HA: N – black mastic for HA: M	Stairwell Next to Gym Stage	Chrysotile	75 SF
HA: 15 – 12x12 inch White w/ Tan Specks VFT (From AHERA Reinspection Report)	1 st and 2 nd Floor Corridors – 1951 Building	Chrysotile	5260 SF
HA: 22 – 12x12 inch White w/ Tan Specks VFT Mastic (From AHERA Reinspection Report)	Room 109, 111, 1 st and 2 nd Floor Corridors – 1937 Building	Chrysotile	5130 SF
HA: 23 – 12x12 inch White w/ Tan Specks VFT (From AHERA Reinspection Report)	1 st and 2 nd Floor Corridors, Room 203, Main Office Entrance – 1951 Building	Chrysotile	5130 SF

Please refer to the AHERA Asbestos Reinspection report which can be found at the school or on the CPS website. Attachment A provides the laboratory sample results and chain of custody documentation for the samples collected by Mr. Panfil, and Attachment B provides Mr. Panfil's current license and accreditation.

Please feel free to call me directly at (312) 762-2953 if you have any questions or require any additional information.

Sincerely,

CARNOW, CONIBEAR & ASSOC., LTD.



Prepared by:
Timothy Panfil
Senior Industrial Hygienist



Reviewed by:
T. Rodman Harvey, CIH, P.E.
Director, General Industrial Hygiene Services

Attachments

ATTACHMENT A



Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com



NVLAP Lab Code 101202-0

ASBESTOS ANALYSIS BY POLARIZED LIGHT MICROSCOPY

Method: EPA-600/M4-82-020

Carnow, Conibear & Assoc., LTD.

300 W. Adams Street Suite 1200

Chicago, IL 60606

Phone: (312) 782-4486

Fax: (312) 782-5145

Reference:

Location: Garvey

Batch No.: 288901

Customer No.: 141

Date Received: 04/12/2010

Date Analyzed: 04/12/2010

Date Reported: 04/12/2010

Turn Around Time: 24 Hour

Laboratory Sample	Customer Sample Number	Asbestos Components (%)	Non-Asbestos Components (%)
288901001	AA1	ND	Cellulose 20-25% Binder 75-80%
288901002	AA2	ND	Cellulose 20-25% Binder 75-80%
288901003	AA3	ND	Cellulose 20-25% Binder 75-80%

ND = Asbestos Not Detected (Not Present) NA = Not Analyzed NS = Not Submitted

Components of inhomogeneous samples are analyzed per our Standard Operating Procedure, or per customer request.

The use of the NVLAP logo does not imply endorsement by NVLAP or any agency of the US Government.

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory.

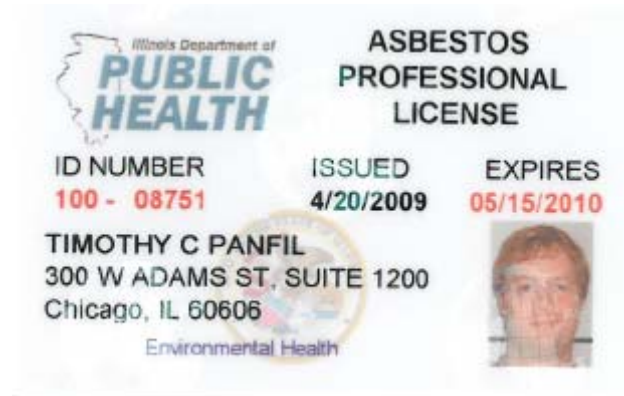
Analyzed by Name:

Henry Robinson, Microscopist

ATTACHMENT B

Timothy Panfil

Licensed Asbestos Inspector, Project Manager,
and Air Sampling Professional



ENDORSEMENTS	TC EXPIRES
INSPECTOR	12/18/2009
PROJECT MANAGER AIR SAMPLING PROFESSIONAL	1/6/2010

Alteration of this license shall result in legal action
This license issued under authority of the State of Illinois
Department of Public Health
This license is valid only when accompanied by a valid
training course certificate.



April 26, 2010

Mr. Richard Schleyer
Public Building Commission of Chicago
Richard J. Daley Center, Room 200
50 West Washington Street
Chicago, Illinois 60602

**Re: Hazardous Material Survey
John W. Garvy Elementary School
5225 North Oak Park Avenue
Chicago, Illinois 60656
Project No. E128340081-02**

Dear Mr. Schleyer:

On April 12, 2010, Carnow, Conibear, and Associates, Ltd. (Carnow Conibear) conducted a hazardous material survey prior to renovation at Garvy Elementary School located at 5225 North Oak Park Avenue in Chicago, Illinois. The survey was limited to materials that may be disturbed during planned renovations (PBCC Project No. 05360). These areas included the Entrance Foyer and Corridors in the Main School, located just north of the Gym. It also appears the Gym storage area will be affected, and possibly part of the Gym as well. A new building will be tied into the existing structure at this location. In addition, new fire alarm devices are to be installed in various areas of the Main building and the modular unit is scheduled for removal or demolition.

The hazardous materials survey consisted of visually inspecting the subject site to determine the presence and location of polychlorinated-biphenyl (PCB) containing equipment (lighting ballasts, switchgears, transformers, and hydraulic fluids), mercury containing equipment (mercury lamps, thermostats, switches, thermometers, regulators, and gauges), and other hazardous chemical wastes, such as chlorofluorocarbons (CFC's) or equipment. Hazardous materials identified during the survey included:

- Potential PCB-containing equipment/oil
- Potential Mercury containing equipment
- Chemical Wastes

Tables I and II identify the materials found in each building and approximate quantities of the materials.

Table I – Main Building

Category	Item	Quantity	Units	Location
PCBs	Fluorescent Ballasts	25	each	Throughout
	Transformer	1	each	Exterior: East Side of School
Mercury	Fluorescent Bulbs	76	each	Throughout
	Thermostat	1	each	Gym
Chemicals	Fire Extinguishers	2	each	1 st and 2 nd Floor Hallways

Table II – Modular Unit

Category	Item	Quantity	Units	Location
PCBs	Fluorescent Ballasts	60	each	Throughout
	Transformer	1	each	Exterior: East Side
Mercury	Fluorescent Bulbs	216	each	Throughout
Chemicals	Fire Extinguishers	2	each	Classrooms
	Air Conditioning Units	4	each	Exterior
	Cleaning Chemicals	6	gallons	Storage Closet

If you have any questions regarding this hazardous material survey, please feel free to contact me at (312) 762-2926.

Sincerely,

CARNOW, CONIBEAR & ASSOC., LTD.



Elaine Petkovsek, P. E.
Project Manager, Environmental Engineering



Timothy Panfil
Senior Industrial Hygienist



April 26, 2010

Mr. Richard J. Schleyer, P.E.
Environmental Program Manager, PMO
Public Building Commission of Chicago
Richard J. Daley Center, Room 200
50 West Washington Street
Chicago, Illinois 60602

**RE: Limited Lead-Based Paint Assessment
John W. Garvy Elementary School
5225 North Oak Park Avenue
Chicago, Illinois 60656
Project No. E128340081-02**

Dear Mr. Schleyer:

Carnow, Conibear & Assoc., Ltd. (Carnow Conibear) was retained by the Public Building Commission of Chicago (PBCC) to perform a limited lead-based paint (LBP) assessment prior to renovation at Garvy Elementary School located at 5225 North Oak Park Avenue in Chicago, Illinois. The sampling was limited to suspect painted structures that may be disturbed during planned renovations (PBCC Project No. 05360). The main renovation area will include the Entrance Foyer and Corridors in the Main School, located just north of the Gym. In addition, it also appears the Gym storage area will be affected, and possibly part of the Gym as well. A new building will be tied into the existing structure at this location. In addition, new fire alarm devices are to be installed in various areas of the Main building and the modular unit is scheduled for removal or demolition. The assessment was conducted on April 12, 2010 by Mr. Timothy Panfil, an Illinois Department of Public Health (IDPH) licensed Lead Inspector (IDPH License No. L-006798).

Sampling of visible and accessible suspect lead-based painted components and/or surfaces was conducted following modified U.S. Department of Housing and Urban Development (HUD) guidelines of June 1995 for single family housing, Chapter 7: Lead-Based Paint Inspection 1997 Revision, and the EPA and HUD's Performance Characteristics Sheet for the RMD LPA-1 XRF lead paint analysis system. These guidelines apply to residential properties. Carnow Conibear modified these guidelines and tested typical major building components. The sampling was conducted with an XRF spectrum analyzer using a Co-57 isotope with a 12 millicurie source. Painted surfaces which indicate a concentration of 1.0 mg/cm² or greater are considered to be lead-based paint as defined by HUD. The survey results were recorded directly in the instrument memory during the field activities.

Table I identifies the lead painted components and/or surfaces as defined by HUD. Paint sampling was collected from walls, ceilings, and other substantial architectural components.

See Appendix A for a complete testing log of all XRF measurements collected for this assessment and Appendix B for Mr. Panfil's current license and accreditation.

Table I
Garvy Elementary School: Summary of Lead-Based Paint XRF Sample Results
Main Building – At Connection Point (Gym Area) and Mobile Unit
April 12, 2010

<i>Location(s)</i>	<i>Component</i>	<i>Substrate</i>	<i>Color</i>	<i>Positive Result(s) (mg/cm²)</i>
Main School: Stairwells – North and South of Gym Stage	Stair Stringer	Metal	Brown	1.0
Main School: Classroom 213 Closet	Ladder	Metal	Green	1.8
Main School: Basement – at bottom of stairs	Wall	Concrete	Green	1.0

Painted surfaces which indicate a concentration of ≥ 1.0 milligram per centimeter squared (mg/cm²) of surface area are considered to be lead-based paint as defined by the Department of Housing and Urban Development.

Conclusions

Based on the XRF sample results, Carnow Conibear recommends the following:

- Incorporate data from this report into the future demolition/renovation documents.
- All work involving the disturbance of lead based paint shall be in accordance with the IDPH and OSHA regulations and requirements. The demolition/renovation contractor shall utilize engineering control methods to reduce or eliminate potential lead exposures for the site workers.

If you have any questions or require any additional information please feel free to call me directly at 312.762.2904.

Sincerely,

CARNOW, CONIBEAR AND ASSOC., LTD.



Prepared by:
Timothy Panfil
Senior Industrial Hygienist



Reviewed by:
T. Rodman Harvey, CIH, P.E.
Director, General Industrial Hygiene Services

APPENDIX A
XRF FIELD DATA SHEETS

Lead Based Paint Data Sheet

Address/Unit Number: Garvy Elementary

Inspection Date: 4/12/10

XRF File #: _____

Room Equivalent: Proposed Renovation Area

Inspector: Timothy Panfil

License #: L-006798

XRF Serial #: 1321 XRF Instrument: RMD LPA-1

Inspector's Signature: 

Sample No.	Substrate	Component	Color	Side (N, E, S, W)	Test Location	XRF Reading	Classification (P=Positive, N=Negative, I=Inconclusive)
1		Calibration @ 1.0				1.0	P
2		Calibration @ 0.0				0.1	N
3		Calibration @ 1.0				1.0	P
4	Plaster	Wall	Grey	N	1 st Floor: Gym Stage	0.3	N
5	Plaster	Wall	Grey	E	1 st Floor: Gym Stage	0.1	N
6	Plaster	Wall	Grey	N	1 st Floor: Stairwell North of Stage	0.0	N
7	Plaster	Wall	Grey	E	1 st Floor: Stairwell North of Stage	0.0	N
8	Plaster	Wall	Grey	W	1 st Floor: Stairwell North of Stage	0.0	N
9	Concrete	Floor	Grey	--	1 st Floor: Stairwell North of Stage	0.1	N
10	Metal	Stair Stringer	Brown	N	1st Floor: Stairwell North of Stage	1.0	P
11	Metal	Door Frame	Brown	N	1 st Floor: Stairwell North of Stage	0.2	N
12	Metal	Door	Brown	N	1 st Floor: Stairwell North of Stage	0.1	N
13	Wood	Wall	Grey	S	1 st Floor: Stairwell North of Stage	0.1	N
14	Plaster	Wall	Grey	S	1 st Floor: Stairwell North of Stage	0.1	N
15	Metal	Handrail	Brown	N	1 st Floor: Stairwell North of Stage	0.1	N
16	Plaster	Wall	Grey	N	1 st Floor: Gym Storage Room	0.1	N
17	Plaster	Wall	White	E	1 st Floor: Entrance Foyer 4 (North of Gym)	0.1	N
18	Plaster	Wall	White	W	1 st Floor: Entrance Foyer 4 (North of Gym)	0.1	N
19	Metal	South Door	Brown	S	1 st Floor: Entrance Foyer 4 (North of Gym)	0.1	N
20	Plaster	Wall	White	N	1 st Floor: Entrance Foyer 4 (North of Gym)	0.2	N
21	Ceramic	Wall	Tan	N	1 st Floor: Gym	0.2	N
22	Plaster	Wall	White	N	1 st Floor: E/W Corridor North of Gym	0.1	N
23	Plaster	Wall	White	S	1 st Floor: E/W Corridor North of Gym	0.4	N
24	Plaster	Wall	White	E	1 st Floor: E/W Corridor North of Gym	0.1	N
25	Plaster	Wall	White	W	1 st Floor: E/W Corridor North of Gym	0.1	N

Lead Based Paint Data Sheet

Address/Unit Number: Garvy Elementary

Inspection Date: 4/12/10

XRF File #: _____

Room Equivalent: Proposed Renovation Area

Inspector: Timothy Panfil

License #: L-006798

XRF Serial #: 1321 XRF Instrument: RMD LPA-1

Inspector's Signature: 

Sample No.	Substrate	Component	Color	Side (N, E, S, W)	Test Location	XRF Reading	Classification (P=Positive, N=Negative, I=Inconclusive)
26	Metal	Locker	Red	E	1 st Floor: E/W Corridor North of Gym	0.2	N
27	Plaster	Wall	White	S	1 st Floor: Room 111	0.1	N
28	Plaster	Wall	White	N	1 st Floor: Room 111	0.3	N
29	Plaster	Wall	White	E	1 st Floor: Room 111	0.0	N
30	Plaster	Wall	White	W	1 st Floor: Room 111	0.1	N
31	Wood	Door	Stained	W	1 st Floor: Room 111	0.2	N
32	Plaster	Wall	White	N	1 st Floor: Classroom 112	0.1	N
33	Plaster	Wall	White	E	1 st Floor: Classroom 112	0.2	N
34	Plaster	Wall	White	W	1 st Floor: Classroom 112	0.1	N
35	Plaster	Wall	White	S	1 st Floor: Classroom 112	0.0	N
36	Ceramic	Wall	White	S	1 st Floor Boys Restroom	0.2	N
37	Plaster	Wall	White	W	1 st Floor: Main N/S Corridor – Near 110	0.1	N
38	Plaster	Wall	White	N	1 st Floor: Door 1 Corridor	0.3	N
39	Plaster	Wall	White	E	1 st Floor: Door 1 Entrance Corridor	0.1	N
40	Plaster	Wall	White	S	1 st Floor: Main Office	0.1	N
41	Plaster	Wall	White	W	1 st Floor: Main Office	0.0	N
42	Plaster	Wall	White	S	1 st Floor: E/W Corridor Near 105	0.2	N
43	Plaster	Wall	White	N	1 st Floor: E/W Corridor Near 102	0.2	N
44	Plaster	Wall	White	N	2 nd Floor: E/W Corridor Near 202	0.1	N
45	Plaster	Wall	White	S	2 nd Floor: E/W Corridor Near 206	0.3	N
46	Plaster	Wall	White	N	2 nd Floor: E/W Corridor Near 206	0.2	N
47	Plaster	Wall	White	W	2 nd Floor: E/W Corridor Near 208	0.0	N
48	Plaster	Wall	White	W	2 nd Floor: E/W Corridor Near 209	0.0	N
49	Plaster	Wall	White	E	2 nd Floor: E/W Corridor Near 212	0.2	N
50	Plaster	Wall	White	S	2 nd Floor: E/W Corridor Near 212	0.2	N

Lead Based Paint Data Sheet

Address/Unit Number: Garvy Elementary

Inspection Date: 4/12/10

XRF File #: _____

Room Equivalent: Proposed Renovation Area

Inspector: Timothy Panfil

License #: L-006798

XRF Serial #: 1321 XRF Instrument: RMD LPA-1

Inspector's Signature: 

Sample No.	Substrate	Component	Color	Side (N, E, S, W)	Test Location	XRF Reading	Classification (P=Positive, N=Negative, I=Inconclusive)
51	Plaster	Wall	White	W	2 nd Floor: E/W Corridor Near 212	0.2	N
52	Plaster	Ceiling	White	--	2 nd Floor: E/W Corridor Near 212	0.0	N
53	Plaster	Wall	White	N	2 nd Floor: Classroom 211	0.2	N
54	Plaster	Wall	White	E	2 nd Floor: Classroom 211	0.1	N
55	Plaster	Wall	White	S	2 nd Floor: Classroom 211	0.0	N
56	Plaster	Wall	White	W	2 nd Floor: Classroom 211	0.1	N
57	Plaster	Wall	White	N	2 nd Floor: Classroom 213	0.1	N
58	Plaster	Wall	White	E	2 nd Floor: Classroom 213	0.1	N
59	Plaster	Wall	White	S	2 nd Floor: Classroom 213	0.1	N
60	Plaster	Wall	White	W	2 nd Floor: Classroom 213	0.1	N
61	Plaster	Wall	White	W	2 nd Floor: Classroom 213 Closet	0.1	N
62	Metal	Ladder	Green	--	2nd Floor: Classroom 213 Closet	1.8	P
63	Plaster	Wall	White	N	2 nd Floor: Classroom 212	0.2	N
64	Plaster	Wall	White	E	2 nd Floor: Classroom 212	0.1	N
65	Plaster	Wall	White	S	2 nd Floor: Classroom 212	0.2	N
66	Plaster	Wall	White	W	2 nd Floor: Classroom 212	0.1	N
67	Ceramic	Wall	White	S	2 nd Floor: Boys Restroom	0.1	N
68	Plaster	Wall	White	S	2 nd Floor: Boys Restroom	0.1	N
69	Concrete	Wall	Green	S	Basement: Bottom of Stairs	1.0	P
70	Concrete	Wall	White	S	Basement: Bottom of Stairs	0.2	N
71	Wood	Door to Crawlspace	Brown	S	Basement: Bottom of Stairs	0.2	N
72	Concrete	Ceiling	White	--	Basement: Bottom of Stairs	0.1	N
73	Metal	Door	White	E	Exterior: East Side Near Gym	0.4	N
74	Metal	Window Frame	White	E	Exterior: East Side Near Gym	0.2	N
75	Metal	Transformer	Black	E	Exterior: East Side Near Gym	0.2	N

APPENDIX B

INSPECTOR LICENSE AND ACCREDITATION

Tim Panfil

Licensed Lead Inspector

Illinois Department of
PUBLIC HEALTH

**LEAD INSPECTOR
LICENSE**

LEAD ID	ISSUED	EXPIRES
006798	12/31/2009	1/31/2011

Timothy C Panfil
1258 W Winona St, Unit 2C
Chicago, IL 60640

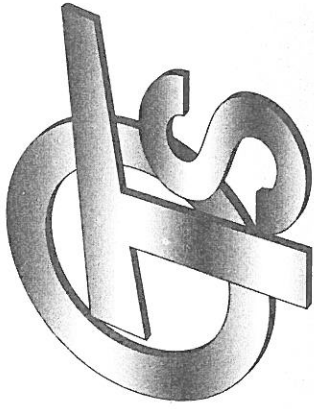


ILLINOIS LEAD PROGRAM
Environmental Health

Alteration of this license shall result in legal action
INSPECTOR CERTIFICATE EXPIRES 9/17/2011

This license issued under authority of the State of
Illinois -Department of Public Health
This license is valid only when accompanied by a
valid training course certificate

If found return to 525 W. Jefferson Street
Springfield, IL 62761



Occupational Training & Supply, Inc.

7233 Adams Street ♦ Willowbrook, IL 60527 ♦ (630) 655-3900

Timothy Panfil

has successfully completed the 8 hour Lead Inspector Refresher course and has passed the competency exam with a minimum score of 70%. This course is accredited by the Illinois Department of Public Health in accordance with the Illinois Lead Poisoning Prevention Code.

Lead Inspector Refresher

Course Date: 9/17/2008

Expiration Date: 9/17/2011

Kathy DeSalvo, Director

Exam Date: 9/17/2008

Certificate: LIR0809172484

2008

SECTION 01030

CONSTRUCTION OPERATIONS AND SITE UTILIZATION PLAN

PART 1 - GENERAL

1.1 SUMMARY

- A. The Construction Operations Plan provides a coordinated construction environment to ensure an orderly, secure and safe operation within the existing school and the entire school property, consequently forming the basis for the Site Utilization Plan prepared by the General Contractor.
- B. The PBC's Authorized Commission Representative in direct coordination with the CPS will administer the plan activities. All Construction Operating issues will be channeled through and require approval of the PBC's Authorized Commission Representative in coordination with the CPS and/or the Building Engineer and Principal.
- C. The Construction Operations Plan has been prepared based on the requirements of the project and in coordination with the existing school operations and program. The elements of this plan required for incorporation into the Site Utilization Plan are included in this section.

1.2 RELATED SECTIONS

- A. Refer to the General Contractor's Service Agreement for information related to this section. Additional Specification Sections containing information that relate to this section include:

- 02050 Demolition
- 02116 Underground Storage Tank Removal
- 02119 Special and Haz Waste Liquids Removal
- 02222 Excavating, Backfilling, Compacting for Utilities
- 02231 Tree Protection and Trimming
- 02300 Earthwork
- 02316 Soil Backfill Demo Debris Removal
- 02317 Special and haz Waste Removal
- 02318 Acceptance Of Backfill, Top Soil & Cu Structural Soil
- 02511 Hot Mix Asphalt Paving
- 02513 Portland Cement Concrete Paving
- 02550 Permeable Pavers
- 02700 Sewerage Drainage
- 02707 Water Service
- 02790 Basketball Court Surface
- 02822 Ornamental Fence
- 02825 Steel Ornamental Gates
- 02831 Chain Link Fences and Gates
- 02870 Site Furnishings
- 02871 Exterior Basketball Backstop Assembly
- 02900 Landscaping

1.3 GENERAL REQUIREMENTS

- A. The General Contractor shall review and be familiar with the site conditions through site visits.
- B. General Contractor to provide all temporary and permanent driveway apron and alley permits for the duration of the construction as required. The General Contractor is to pay all fees required for processing permits and is to contact and comply with all authorities and jurisdiction required for permitting.
- C. General Contractor will provide snow removal and clear all debris in construction area and construction access drives and walks.
- D. General Contractor is to provide all required permits for street access for truck delivery from the local and state jurisdiction.
- E. The General Contractor will be required to coordinate all phases of construction and complete the work within the Milestone completion date(s) for the work. The General Contractor shall be also held responsible for meeting all related provisions as described within this section.
- F. Upon issuance of the Notice to Proceed (NTP) the General Contractor shall survey the site and photograph the area of construction operations and surrounding areas. Upon completion of the work the Contractor is to restore the areas to the documented condition prior to the start of work or as otherwise indicated in the Contract Documents.
- G. General Contractor is to replace all removed trees, bushes, ground covers and grass on the Chicago Public Schools' property used as part of the construction operations. Also concrete pavement walks and asphalt surfaces will be replaced or restored to same or improved condition prior to construction.
- H. General Contractor shall coordinate work with School during yearly Mandatory State Testing periods. Test dates should be verified in preparation of the Contractors Schedule. No work will be permitted in the existing facility or on the construction site during testing except as specifically approved by PBC's Authorized Commission Representative, in conjunction with the CPS, school Principal, and Building Engineer. If the General Contractor secures approval for specific work to be executed in designated areas during testing periods, the General Contractor must minimize noise in these areas during these time periods, and if requested by the School, stop work causing the noise until testing is completed. General Contractor shall account for in his bid and bear all costs for any loss of time or production related to Mandatory State Testing. The State Testing Dates for the 2011 academic years are as follows: February 28 through March 11, 2011.
- I. General Contractor will coordinate and maintain all exit egress during construction as required by the City of Chicago code, other entities with jurisdiction, and as directed by the PBC's Authorized Commission Representative in conjunction with the CPS. The General Contractor shall provide and maintain all materials and labor including barricades, construction fence, doors, partitions, and fire rated walls as required for safe egress, including any shared egress with school during construction.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

3.1 SITE UTILIZATION PLAN

- A. After Notice of Award and prior to the issuance of the Notice to Proceed the General Contractor is to prepare and submit to the PBC's Authorized Commission Representative for approval a Preliminary Site Utilization Plan based on the Construction Operations requirements outlined in this section. Mobilization on-site is not to occur until approval of the Site Utilization Plan is obtained. If requested by the Contractor, a preliminary meeting to review site elements and Construction Operations with the PBC and CPS staff prior to submission of the Site Utilization Plan will be held at the site.
- B. The Site Utilization Plan shall be submitted within 15 calendar days of issuance of the NTP and shall be provided in a full-size graphic drawing format (36" x 48"). The final Site Utilization Plan must be approved before any direct construction activities take place on the site. Provide a separate plan for the site and for each floor of the existing building where work is being performed. The Contractor is required to prepare and secure approvals of a separate Site Utilization Plan for each phase of the work. Modifications to the format and sheet size will be permitted if pre-approved by the PBC's Authorized Commission Representative and if proposed modifications will facilitate preparation, presentation and review of the Site Utilization Plan. Electronic copies of the Contract Document drawings as appropriate will be provided for this purpose upon request. The Site Utilization Plan shall at a minimum include the following elements:
1. Title block information including School Name, Contract Number, General Contractor, Building floor/level information, construction phasing, and current plan date.
 2. All denotations shall be illustrated in a Legend on each construction phasing plan.
 3. Building footprint of both new and existing buildings, trees, landscaping, paving, drainage structures, existing and ornamental fencing and other important site features.
 4. Areas of staging for construction, students and staff, student drop-off points, existing school entrances and exits, student and staff parking areas, construction parking, and traffic patterns for both construction and non-construction vehicles.
 5. Denotation of the limits of construction and required construction fencing including any existing fencing to remain.
 6. Denotation of temporary signage, temporary stock pile, temporary stocked materials, and temporary sump pump.
 7. Denotation of required covered construction barricade walkways, and crane locations.
 8. Denotation of areas allowed for staging purposes: construction personnel parking, material storage, and construction trailer(s). Such activities are to only take place in areas designated and approved by the PBC's Authorized Commission Representative in conjunction with the CPS and School Principal.
 9. Denotation of any specific site conditions required to be observed such as keeping alleys clear next to adjacent properties, and any other issues listed on the Construction Operations Site Plan.
 10. Denotation of areas allowed for site access gates, trailers, wheel washers, storage and existing utility poles.

11. Denotation of all required temporary utilities, including but not limited to AT&T, Peoples Gas, and ComEd.
12. Denotation of areas of work within the existing building for the period of time covered by the Site Utilization Plan, coordinated with the Project Schedule. Each area should indicate planned beginning and end dates for work in that area. Areas where all work is completed are to be noted.
13. Construction worker ingress/egress, material staging and mock-up areas in the existing building and construction areas.
14. Proposed locations of temporary protection, barricades, and temporary walls within the existing building.
15. Denotation of all temporary exits and path of travel by pedestrians and vehicular traffic.
16. Denotation of construction limits by phase and area with commencement and completion dates for each.
17. Note the time and location of any system tie-ins to existing services, including but not limited to water, sewer, power, controls, security, and HVAC.

3.2 SITE UTILIZATION PLAN UPDATES

- A. The General Contractor is required to submit for approval updated Site Utilization Plans whenever conditions in the current approved plan have changed. Approval is required prior to proceeding on any changed conditions not previously approved. Requirements for updating include the following:
 1. In coordination with the project schedule provide detailed information regarding work in the existing building including phasing, vacation of existing in-use areas, and any other information requested by the PBC and CPS.
 2. Revision to the site plan to reflect changing conditions regarding construction fencing, ingress and egress, student and staff staging, construction deliveries, areas of stored materials, parking, and any other construction facility revisions.
 3. The Contractor is required to prepare and secure approvals of a separate Site Utilization Plan for each phase of the work.

3.3 CONSTRUCTION OPERATIONS PLAN

- A. Construction Phasing – In order to minimize disruption to school operations, the project shall be completed in multiple Phases, with each Phase containing different components of the project. These Phases include: Phase IA – Site Preparation and Modular Classrooms, Phase IIA – New 2 Story Addition and Existing School Building Interior Renovations, and Phase IIB Site Improvements North of Existing School Building and Existing School Building Interior Renovations. Listed below is a summary of these Phases, along with durations for each.

1. **Phase IA - Site Preparation and Modular Classrooms (By Others):**

- This Phase includes all Work associated with the installation of temporary fencing and construction fencing, removal of existing modular building (by others), new temporary modular classrooms and all required utilities, demolition and removal of

internal chain link fencing, basketball and playground poles and other above grade items along with their associated foundations.

- All Site Preparation Work within the limits of the Phase IIA area shall be completed by July 9th 2010.
- All Site Preparation Work within the limits of the Phase IIB area shall be completed by August 18th 2010.

2. Phase IIA - New 2 Story Addition and Existing School Building Interior Renovations:

- This Phase includes all Work associated with the Construction of the New 2 Story Addition, interior demolition, required remediation and renovation work for the existing school building, upgrade to existing Fire Alarm system, new generator and electrical transformer, new south parking lot, new driveways, landscaping, site and utility work.
- All Work associated with the interior renovations of the existing school building shall commence and be completed during the summer recess periods only. No work will be permitted during the 2010 and 2011 school sessions. Contractor must obtain written approval from the Commission for performing any work during any other holiday breaks. All Work associated with the interior renovations, including upgrades to the Fire Alarm, FP system and removal and relocation of MEP equipment shall commence upon issuance of the NTP through August 13, 2010, and from June 20, 2011, and be completed by no later than August 12, 2011.
- All Work associated with the interior renovations of the second floor existing building Link per the drawings, shall commence June 20, 2011, and be completed by no later than August 12, 2011.
- All Work associated with the construction of the New 2 Story Addition, exterior demolition, required remediation, upgrade to existing Fire Alarm system, new generator, new south parking lot, new driveways, landscaping, utility, and site work shall be completed within 365 calendar days of issuance of the NTP.
- All Work associated with the furnishing and installation of the transformers servicing the new addition and existing building shall commence upon issuance of the NTP and be completed by no later than August 23, 2010. Utility shut-offs will only be permitted after regular school hours from Friday 6:00pm through Monday 7:00am. All utility shut-offs require written approval of the PBC's Authorized Commission Representative in conjunction with the CPS.
- Removal of the modular classroom as per the drawings and specifications within the limits of the Phase IIA area shall be by others and be completed by June 30, 2010.

3. Phase IIB - Site Improvements North of Existing School Building and Existing School Building Interior Renovations:

- This Phase includes all Work associated with the North end of site that includes a 3000 S.F. gravel pad for future playground area and the installation and removal of construction fencing per the drawings.
- All Work for Phase IIB shall commence June 20, 2011, and be completed within 410 calendar days of issuance of NTP.
- Removal of the modular classroom as per the drawings and specifications within the limits of the Phase IIB area shall be by others and be completed by June 30, 2011.

4. The General Contractor is to maintain all staging, deliveries and general administrative operations to the east side of the Performing Arts Addition.
 - a. The Contractor is required to prepare and secure approvals of a separate Site Utilization Plan for each phase of the work.
 - b. All provisions of the Contract Documents and Specifications will remain in effect throughout each phase of the project.

B. Site Restrictions

1. No construction deliveries during school days will be permitted to either the existing facility or the new additions between the hours of 7:00 to 9:00 AM and 2:00 to 4:00 PM.
2. Upon issuance of the Notice to Proceed (NTP), the Contractor is to set up and stage the entire project within the boundaries of the existing construction fence. The General Contractor is responsible for maintaining and modifying the fence as necessary and as approved in his Site Utilization Plan for the life of the project. Removal and disposal of the fence and restoration of area damaged by fencing at the conclusion of the project is also the responsibility of the General Contractor.
3. Organization of the work and facilities within the construction fence and as otherwise noted above will be the sole responsibility of the General Contractor. However, temporary facilities that produce noise and/or dust are to be located as far as possible from the existing building. The PBC in conjunction with the CPS can require relocation of any facility that disrupts normal school operation. General Contractor shall provide dust control and continuous street cleaning at streets surrounding project site to remediate dirt and construction debris from construction activities.
4. Delivery and construction access to the site will be determined by the site utilization plan. Subject to City requirements, worker parking will be allowed on the street only. There will be no parking on-site outside of the Contractor's fenced work area on school days. Parking priority is for school staff and students at all times. Modifications to parking restrictions stated herein will be made if required to maintain this priority.

C. Access to work in the Existing Building

1. The General Contractor will be allowed access to the work in the existing building only as previously approved through the project schedule and Site Utilization Plan.
2. Exterior work on the existing building can be conducted during school hours and as approved in the Site Utilization Plan, however, dust, noise, and odor infiltration into the existing building will not be permitted under any circumstances. Notwithstanding approval of the Site Utilization Plan, the Contractor will be required to immediately cease or relocate operations whenever these activities conflict with the school learning environment.
3. There will be no summer school session at the Garry Elementary School in 2010 and 2011, allowing less restrictive access to the existing building. Faculty and staff may occupy portions of the existing building during each summer, and the contractor shall coordinate

work to accommodate school representatives during this these summer periods. Site Utilization Plan requirements however, will remain in effect as modified and approved for the unoccupied period. All requirements of the Contract Documents will remain in effect with the exception of those requirements that serve the exclusive purpose of coordination with student activities at the school.

4. The PBC in conjunction with the CPS, School Building Engineer and/or other approved CPS staff are required to be present at all times work is in progress in the existing Building. If advance arrangements are not made with CPS, the General Contractor will be responsible for all overtime costs for the CPS staff member for work outside of normal working hours. Overtime arrangements for CPS staff includes weekends, holidays, and generally hours beyond that listed in Site Restrictions above. IUOE Locals #143 and #399 Holidays are as follows (Saturday holidays are observed on Friday, Sunday holidays are observed on Monday):
 - a. New Year's Day
 - b. Martin Luther King Jr.'s Birthday
 - c. Lincoln's Birthday
 - d. Presidents Day
 - e. Pulaski Day
 - f. Memorial Day
 - g. Independence Day
 - h. Labor Day
 - i. Columbus Day
 - j. Veterans Day
 - k. Thanksgiving
 - l. Friday after Thanksgiving
 - m. Christmas Day

END OF SECTION

SECTION 02089 - HAZARDOUS AND UNIVERSAL WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents: All terms and conditions of the Contract apply to this Section.
- B. Description of Work:
 - 1. This Section describes the segregation, packaging, labeling, transport, and disposal of waste materials generated by demolition activities and the subsequent shipment of properly packaged and labeled waste materials to open, permitted and Owner-approved disposal sites.
 - 2. The Contractor's work includes work area preparation, sampling and analysis, on site handling, supervision of all work, preparation of reports, protection of on-site persons, utilities, and property, and payment of all transport and disposal/recycling fees.
- B. A hazardous materials survey has not been conducted for the project. If hazardous materials are discovered during demolition/construction activities, the Contractor shall perform work in accordance with this Section.

1.2 REFERENCES

- A. General Applicability of Codes and Regulations:
 - 1. Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes and regulations have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.
- B. Contractor Responsibility:
 - 1. The Contractor shall assume full responsibility and liability for the compliance with all applicable federal, state, and local regulations pertaining to hazardous, special and universal waste management and disposal/recycling.
 - 2. Notice will be provided to the Public Building Commission of Chicago (PBCC) within 4 hours of any environmental problems, complaints, fines, citations or issues by any government body or regulatory agency pertaining to hazardous, special or universal waste management and disposal. Written confirmation will be provided to the Owner within 48 hours of the incident that indicates all problems and issues have been satisfactorily addressed.
 - 3. Notice shall be provided to the PBCC a minimum of 2 working days prior to the removal of any hazardous, special or universal waste and/or recycled hazardous, special or universal waste from the site.
- C. Federal Requirements:
 - 1. Federal requirements which govern the management, hauling and disposal of hazardous, special and universal waste/recycled material include but are not limited to the following:
 - a. DOT: U. S. Department of Transportation, including but not limited to the following:
 - i. Hazardous Substances Title 49, Part 171 and 172 of the Code of Federal Regulations
 - ii. Hazardous Material Regulations General Awareness and Training Requirements for Handlers, Loaders and Drivers Title 49, Parts 171-180 of the Code of Federal Regulations

- iii. Hazardous Material Regulations Editorial and Technical Revisions Title 49, Parts 171-180 of the Code of Federal Regulations
- b. EPA: U. S. Environmental Protection Agency (EPA), including but not limited to the following:
 - i. Management of Hazardous Wastes Resource Conservation and Recovery Act (RCRA), Title 40, Parts 260-299 of the Code of Federal Regulations.
 - ii. Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution In Commerce, and Use Prohibitions, Title 40, Parts 761, of the Code of Federal Regulations.
 - iii. Protection of Stratospheric Ozone, Title 40, Part 82 of the Code of Federal Regulations.
 - iv. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Title 42, Section 103.
 - v. Universal Waste Rule, Title 40, Part 273 of the Code of Federal Regulations.
- c. LABOR: Occupational Safety and Health Administration, including but not limited to:
 - i. Occupational Safety and Health Guidelines, Respiratory Protection, Title 29, Part 1910.134.
 - ii. Occupational Safety and Health Guidelines, Occupational Safety and Health Standards, Lead, Title 29, Part 1910.1025.
 - iii. Occupational Safety and Health Standards, Hazard Communication, Title 29, Part 1910.1200.
 - iv. Safety and Health Guidelines for Construction, Title 29, Part 1926 of the Code of Federal Regulations.
- D. State Requirements: Abide by all state requirements which govern the management, hauling and disposal of hazardous, special and universal waste/recycled material. In Illinois, this is including but not limited to the following:
 - 1. Title 35 of the Illinois Administration Code (IAC), including but not limited to the following:
 - a. Wastestream Authorization, IAC Chapter I, Subpart b, Part 709.
 - b. Hazardous Waste Management Systems: General, IAC Chapter I, Subchapter c, Part 720.
 - c. Identification & Listing of Hazardous Waste, IAC Chapter I, Subchapter c, Part 721.
 - d. Standards Applicable to Generators of Hazardous Waste, IAC Chapter I, Subchapter c, Part 722.
 - e. Standards Applicable to Transporters of Hazardous Waste, IAC Chapter I, Subchapter c, Part 723.
 - f. Standards Applicable to PBCCs, Treaters, Storers, and Disposers of Hazardous Waste, IAC Chapter I, Subchapter c, Part 724.
 - g. Interim Status Standards of Hazardous Waste Treaters, Storers, and Disposers, IAC Chapter I, Subchapter c, Part 725.
 - h. Standards for the Management of Specific Hazardous Waste and Specific Types of Hazardous Waste Management Facilities, IAC Chapter I, Subpart c, Part 726.
 - i. Land Disposal Restrictions, IAC Chapter I, Subchapter c, Part 728.
 - j. Universal Waste Management, IAC Chapter I, Subchapter d, Part 733.
 - k. Solid Waste, IAC Chapter I, Subchapter i, Part 807.
 - l. Special Waste Classifications, IAC Chapter I, Subchapter i, Part 808.
 - m. Special Waste Hauling, IAC Chapter I, Subchapter i, Part 809.
 - n. Standards for New Solid Waste Landfills, IAC Chapter I, Subchapter i, Part 811.
 - o. Procedural Requirements for Permitted Landfills, IAC Chapter I, Subchapter i, Part 813.
 - p. Standards for Existing Landfills and Units, IAC Chapter I, Subchapter g, Part 814.
- E. Local Requirements: Abide by all local requirements as outlined within the Municipal Code of the

City of Chicago which governs the management, hauling and disposal of hazardous, special and universal waste/recycled material.

1.3 DEFINITIONS

- A. Capacitor - a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by dielectric fluid.
- B. Chemical Waste Landfill – an open and approved landfill, permitted under 35 IAC Subtitle G Part 814, at which protection against risk of injury to health or the environment from migration of PCBs to land, water or the atmosphere is provided from PCBs and PCB items deposited therein by locating, engineering, and operating the landfill as specified in 40 CFR 1761.75.
- C. Disposal - intentionally or accidentally to discard, throw away or otherwise complete or terminate the useful life of PCBs and PCB items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs as well as actions related to containing, transporting, destroying, degrading, decontaminating, or confining PCBs and PCB items.
- D. CFR - The Code of Federal Regulations, is the basic component of the Federal Register publication system. The CFR is a codification of the regulations of the various Federal Agencies.
- E. Container - any portable device in which material is sorted, transported, treated, disposed of, or otherwise handled.
- F. Fluorescent light ballast - a device that electrically controls fluorescent light fixtures and that includes a capacitor containing 0.1 kg or less of dielectric oil.
- G. Component – all removable parts/materials which make up ballasts, bulbs, batteries, and other electrical equipment, a percentage of which can be recycled.
- H. Disposal Facility – an open and approved facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure.
- I. EPA Identification - the unique number assigned by the EPA to each generator or transporter of hazardous waste, and each treatment, storage or disposal facility.
- J. Leak - or leaking - any instance in which PCB Article, PCB Container, or PCB Equipment has any PCBs on any portion of its external surface.
- K. Facility - all contiguous land, structures, other appurtenances, and improvements on the land, used for treating, storing, recycling or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units, e.g. one or more landfills, surface impoundments, or a combination of them.
- L. On-site - within the boundaries of a contiguous property unit.
- M. Landfill – an open and permitted disposal facility or part of a facility where hazardous and special wastes are placed in or on land and which is not a land treatment facility, a surface impoundment, or a combination of them.
- N. Manifest - the shipping document, EPA form 7710-53, used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transportation from the point of generation to the point of treatment, storage or disposal.

- O. Polychlorinated Biphenyls (PCBs) - any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance.
- P. PCB Article Container - any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.
- Q. PCB Container - any package, can bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.
- R. PCB Item - any PCB Article, PCB Article Container, PCB Container, or PCB Equipment, that deliberately or unintentionally contains or has as a part of it any PCB or PCBs.
- S. Recover Refrigerant: To remove refrigerant in any condition from an appliance without necessarily testing or processing it in any way.
- T. Recycle Refrigerant: To extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices such as replaceable-core filter-driers, which reduce moisture, acidity, and particulate matter.
- U. Reclaim Refrigerant: To reprocess refrigerant to at least the purity specified in Air-Conditioning and Refrigeration Institute (ARI) Standard 700-1988, "Specification for Fluorocarbon refrigerants", and to verify this purity using the analytical methodology prescribed in the standard. In general reclamation involves the use of processes or procedures available only at the processing or manufacturing facility.
- V. Storage - the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of or stored elsewhere.
- W. Toxic Characteristic Leaching Procedure (TCLP): A laboratory test method to determine the mobility of both organic and inorganic compounds present in liquid, solid, and multiphase wastes performed in accordance with test methods required under 40 CFR Part 261 and 268.
- X. Transporter - any person engaged in the off-site transportation of special waste and/or hazardous waste within the United States, by air, rail, highway or water, if such transportation requires a manifest under 40 CFR Part 262.

1.4 QUALITY ASSURANCE

- A. Work outlined in this Section must be performed by a qualified Contractor with a minimum of 10 years experience, who is thoroughly familiar with working with regulated waste materials of similar size and scope, the Contractor must be familiar with and capable of complying with all federal, state, and local regulatory requirements pertaining to waste handling.
- B. Medical Examinations: The Contractor shall provide workers with a comprehensive medical examination as required by 29 CFR 1910.134 and 29 CFR 1926.62. The examination will not be required if adequate records show that employees have been examined as required within the last year. The Contractor shall institute a medical surveillance program for all employees who are or may be exposed above the action level for more than 30 days per year.

1.5 SUBMITTALS

- A. Before the start of any hazardous waste removal work, the Contractor must submit a Hazardous Waste Management Plan to the Owner fifteen (15) days prior to the start of Work.
- B. During work, the Contractor must submit the following to the PBCC within ten (10) days of activity, off-site removal, or completion of work if duration is less:
 - 1. TCLP test results, as required to characterize waste paint chip debris for segregation and packaging purposes prior to transport from the site.
 - 2. Submit copies of all executed manifests and disposal site receipts and waste quantities.
 - 3. Receipts for all recycled materials accepted at authorized recycling facilities. The receipts will include the number of components recycled as well as the amount of materials recycled and/or disposed.
 - 4. Documents for the removal, handling, recycling or disposal of CFC Refrigerant/Reclamation.
 - 5. Daily Reports – list names of active workers for each day, work starting and stopping times, visitors to the site, and description of work accomplished.
- C. Submittal Review
 - 1. Review of submittals or any comments made do not relieve the Contractor from compliance with the requirements of the contract specifications and drawings. The purpose of this check is to review for general conformance with the design concept of the project and general compliance with the information given in the contract documents.
 - 2. The Contractor must not begin any work applicable to this section until all required submittals have been reviewed and accepted by the PBCC.

1.6 HAZARDOUS WASTE PLAN REQUIREMENTS

- A. The Contractor must prepare a Hazardous Waste Plan designating appropriate procedures and equipment for performing the work. The Hazardous Waste Plan must address the proper management/handling and disposal/recycling of wastes generated during work activities. The Contractor's Hazardous Waste Plan for this project must include as a minimum the items listed below:
 - 1. List of Hazardous Waste Equipment
 - a. A description of the proposed equipment to be used during the removal and handling, temporary storage, and transport of hazardous materials related to the work.
 - 2. Hazardous Material Handling
 - a. A description of the method of transportation, storage, and/or disposal of hazardous materials.
 - 3. Disposal/Recycling Facilities
 - a. Copy of state and local special waste and/or hazardous waste hauler licenses for the transporter.
 - b. U.S. EPA Identification Number of waste hauler.
 - c. Current list of all transporting vehicles to be used including:
 - i. Vehicles make, model and year.
 - ii. Serial number for each vehicle.
 - iii. Vehicle license number.
 - iv. Number of axels.
 - v. Weight capacity of vehicle.
 - d. A list of all licensed qualified truck drivers. Drivers should be able to provide their drivers license upon request.
 - e. Instances where rail haulers are being used, copies of all applicable permits and licenses for the load on/off site location(s) and/or transfer location(s) will be

- provided.
 - f. Name and address of waste disposal/recycling facility where hazardous, special or universal waste materials are to be disposed/processed including:
 - i. Contact person and telephone number.
 - ii. Copy of state license and permit.
 - iii. Facility permits.
 - g. An authorized representative of the recycling facility will provide a signed statement stating the percentage of recycled materials for each of the components including the estimated percentage pertaining to each component which has no recycling value.
 - h. Specimen copy of Uniform Hazardous Waste Manifest form.
 - i. Copy of EPA "Notice of Hazardous Waste Activity" form.
 - j. Copy of forms and permits required by federal, state and local agencies.
 - k. Sample of disposal label(s) to be used.
 - l. Certification of workers and supervisors who have had the 40-hour Hazardous Waste Site training.
 - m. The Contractor shall supply only those personnel qualified to properly handle, store and dispose hazardous waste.
4. Safety Precautions
- a. Personnel safety
 - i. List safety equipment and clothing to be used per OSHA regulations.
 - ii. A description of emergency procedures to be followed in case of physical contact, ingestion, inhalation, etc.
5. Emergency Spills
- a. A description of methods to be used for containment.
 - b. A description of methods to be used for collection and disposal.
 - c. A description of methods and materials to be used to restore areas harmed by emergency spills.
 - d. A description of methods to be used for notification and evacuation procedures.
6. Lead-containing Paint Management
- a. A description of the work procedures that will be utilized to minimize the generation of airborne lead into the environment.

PART 2 - PRODUCTS

2.1 EQUIPMENT/MATERIALS

- A. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags.
- B. DOT Hazardous Waste Disposal Drums: Provide Open -Top Drums (DOT UN 1A2/X 320/S;UN1A2/Y 1.2/100) in accordance with DOT title 49 CFR Parts 173, 177, 178, and 179.
- C. Fiberboard Drums, cylindrical containers manufactured from sturdy fiberboard will be utilized for storage transportation of electrical equipment.
- D. PCB containing ballasts shall be placed in Open -Top drums with vermiculite packing. The drums will be sealed, and labeled as containing hazardous PCB waste. The label shall also include the name and address of the parcel. However, if ballasts are damaged they shall be stored prior to disposal in accordance with 40 CFR 761.65.
- E. DOT Hazardous Waste Labels: in accordance with DOT regulations Title 49 CFR parts 173, 177, 178, and 179.

- F. Corrugated "Gaylord" Boxes with the use of a liner will be used to store and transport bulk materials which will be kept on pallets during storage and transportation.
- G. Materials to be used to restore areas harmed by emergency spills.
- H. Safety equipment and Personal Protective Equipment (PPE) to be used.
- I. Hazardous material manifests and other related forms required by state and local agencies.
- J. Utilize equipment to recover refrigerant that is appropriate for the following:
 - 1. Type of system encountered
 - 2. Refrigerant type
 - 3. Achieving IEPA-mandated vacuum levels

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

- A. The Contractor shall train each employee performing work prior to the time of initial job assignment in accordance with applicable regulations.
- B. Respiratory Protection Program:
 - 1. The Contractor shall furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least every 6 months thereafter if required by 29 CFR 1910.1025.
 - 2. The Contractor shall establish and implement a respiratory protection program as required by 29 CFR 1910.134 and 29 CFR 1926.62.
- C. Hazard Communication Program: Establish and implement a Hazard Communication Program as required by 29 CFR 1910.1200.
- D. Post warning signs at entry points to hazardous work area, as necessary.
- E. Segregate, package, label, transport and dispose of all wastes in accordance with DOT, EPA, state, and local regulations.
- F. Scheduling/Sequencing of the demolition and/or abatement is to be coordinated by the Contractor.
- G. Extreme care shall be used to prevent leakage of refrigerant during removal processes.
- H. Do not mix potentially hazardous waste streams or different refrigerants in the same recovery vessel. Where feasible, separate each type of hazardous waste from other types of hazardous wastes and construction waste.
- I. All electrical circuits shall be de-energized and locked out prior to removal of ballasts. Contractor shall provide temporary lighting as needed.
- J. The Contractor shall identify the location and Commissionship of all on-site transformers. The contents from each transformer shall be characterized for PCB content by the Contractor for proper disposal.

3.2 HAZARDOUS WASTE DESIGNATION

- A. Where not otherwise designated by PBCC as hazardous waste, characterize applicable suspect waste products by conducting representative TCLP testing and referencing 40 CFR Part 261. TCLP test analysis will be performed in accordance with EPA Method 1311.
- B. Work shall include characterization and proper disposal of any soot contained within boilers, incinerators, or stacks; maintenance fluids within heating/cooling equipment; hazardous chemicals; aboveground storage tanks; or lead content of paint present.
- C. Fluids from transformers, electrical equipment, hydraulic equipment, etc. shall be characterized for PCB content per 40 CFR Part 761.
- D. Contractor shall provide representative sampling of waste products in accordance with EPA Document SW-846.

3.3 WASTE/RECYCLED MATERIALS

- A. The following waste products are designated by PBCC as non-salvageable Waste Types:
 - 1. Waste Type A: PCB waste.
 - a. PCB-containing ballasts from fluorescent light fixtures.
 - b. PCB-containing electrical transformers
 - 2. Waste Type B: Mercury-containing waste.
 - a. Thermostats with mercury switches. Individually bagged mercury-containing thermostats.
 - b. Fluorescent and mercury-vapor lamps.
 - 3. Waste Type C: Lead-containing waste.
 - a. Lead paint (liquid or containerized paint wastes).
 - b. Lead-contaminated wastes (paint chips, loose debris, etc.).
 - 4. Waste Type D: Other
 - a. Soot encountered in stacks, incinerators, or associated equipment.
 - b. Containers with maintenance oils and fluids, pesticides.

3.4 WASTE/RECYCLED MATERIALS PACKAGING AND LABELING

- A. Package each segregated Waste Type, A and B, C and D in specified containers as follows: **IMPORTANT: Do Not Mix Waste Streams.**
 - 1. Waste Type A
 - a. Package in Open-Top Drums (DOT UN 1A2/X 320/S;UN1A2/Y 1.2/100) in accordance with 49 CFR Parts 171-180.
 - b. Fill to capacity only with Waste Type A (Do Not Mix Waste Stream types).
 - c. Install gasket on lid, apply lock ring, and seal.
 - d. Apply Hazardous Waste Label to drum side.
 - e. Enter required DOT shipping data per applicable regulations.
 - f. Adjacent to each label, enter the date indicating when waste was first placed in each drum.
 - 2. Waste Type B
 - a. Package in Open-Top Drums (DOT UN 1A2/X 320/S;UN1A2/Y 1.2/100) with polyethylene disposal bag liners.
 - b. Fill liner bags only with Waste Type B (Do Not Mix Waste Stream types); then neck liner bags down into an Open-Top Drum and seal with duct tape.
 - c. Install and seal gasket on lid, apply lock ring and Hazardous Waste Label to drum

- side.
 - d. Enter required DOT shipping data per applicable regulations.
 - e. Adjacent to each label, enter the date indicating when waste was first placed in each drum.
 - 3. Waste Type C
 - a. Handle, store, transport, and dispose lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265.
 - b. Comply with land disposal restriction notification requirements as required by 40 CFR 268.
 - c. Non-hazardous waste may be disposed of as demolition debris (general refuse).
 - d. Submit results of TCLP testing to PBCC prior to disposal.
 - 4. Waste Type D
 - a. Package other wastes as applicable in accordance with Hazardous Wastes Resource Conservation and Recovery Act (RCRA), Title 40, Parts 260-299 of the Code of Federal Regulations.
- B. Sealed and Labeled Containers: maintain all containers in a continuously sealed condition after they have been sealed.
- 1. Do not reopen sealed containers
 - 2. Do not place additional waste in sealed containers.

3.5 TEMPORARY STORAGE

- A. Partially filled containers of hazardous, non-hazardous, special and universal wastes may be stored at the work site for intermittent packaging provided that the following conditions are met:
- 1. Each container is properly labeled when it is first placed in service;
 - 2. Each container remains closed at all times except when compatible waste types are added;
 - 3. Each container storage area is secured and/or attended at all times;
 - 4. When moved from site to site, each container remains within the geographic boundaries of the facility without moving nor crossing public access highways; and
 - 5. Under no circumstances will the accumulated waste remain onsite beyond ninety (90) days from the day that accumulation was initiated.

3.6 REMOVAL OF WASTES/RECYCLED MATERIALS

- A. Immediately seal containers of waste/recycled materials as each the container is filled. Remove containers of waste/recycled materials from the work site within forty-eight (48) hours of being filled.
- B. Transport filled containers from the work site directly to an approved disposal site or recycling center.
- C. All fluorescent light ballasts shall be removed. Those labeled "NO PCBs" shall be packaged separately from those which indicate PCB or do not indicate PCB condition.
- D. Subject to Owner's approval, the Contractor shall arrange with the electric utility provider for the removal of transformers which are owned by the utility provider from the site.
- E. Subject to Owner's approval, the Contractor shall test, remove and dispose of all transformers which are not owned by the electric utility provider.

- F. Continuously maintain custody of all waste/recycled material generated at the work site including security, short-term storage, transportation and disposition until custody is transferred to an approved disposal site or recycling center.
- G. Do not remove, or cause to be removed, hazardous waste from property without a legally executed Uniform Hazardous Waste manifest.
- H. At completion of hauling and disposal of each load, submit copy of waste manifest, chain of custody form, and landfill/recycling facility receipt to PBCC.

3.7 RECYCLING AND RECOVERY

- A. Turn over waste which contains materials for which recovery and/or recycling is possible to an approved recycling center. Materials subject to recycling include, but are not limited to:
 - 1. Fluorescent light tubes.
 - 2. Thermostats with mercury switches.
 - 3. Lead acid batteries.
 - 4. Combustible lead-based painted building components and lead-based paint chips.
 - 5. Ethylene Glycol or other related fluids found within cooling systems.
 - 6. Non-PCB-containing oils.

3.8 STORAGE & TRANSPORTATION OF REFRIGERANTS / CFCs

- A. Use proper storage vessel when recovering refrigerants.
 - 1. IDOT containers meeting the ARI standard.
 - 2. Container working pressure rating must comply with IDOT requirements (49 CFR).
 - a. For Refrigerant HCFC-22: Minimum working pressure rating of 260 psig.
 - b. For Refrigerant CFC-11 (Low-Pressure Refrigerants): Drums of steel construction and designated as 17C or 17E.
 - 3. Open top and plastic drums shall not be used.
 - 4. Previously filled, disposable cylinders shall not be used to store or transport recovered refrigerants.
- B. All recovery vessels shall be visually inspected by the Contractor prior to filling. The Contractor shall inspect and provide the following upon request:
 - 1. Verification of proper IDOT specification.
 - 2. Pressure rating verification.
 - 3. Current hydrostatic test date.
 - 4. Cylinder shall be free of surface dents and imperfections.
- C. Provide required labeling for recovery vessel.
- D. Return all refrigerant to reclamation facilities to be reprocessed to ARI 700 1988 Standards or dispose in an approved facility.
- E. The Contractor shall provide PBCC with required documents for CFC Refrigerant/Reclamation.

3.9 REMOVAL OF NON-HAZARDOUS WASTE MATERIAL

- A. Transport and legally dispose of non-hazardous waste products, materials, residues and refuse.

- B. Non-hazardous waste products, materials, residues and refuse include, but are not necessarily limited to:
 - 1. Materials which are determined to be non-hazardous wastes through objective sampling in accordance with EPA Document SW-846 and laboratory analysis in accordance with EPA Method 1311.
 - 2. Emptied hazardous material containers: containers holding a material with constituents listed on the MSDS as hazardous.
 - a. When a container is emptied of its hazardous contents by pouring or scraping so that less than one inch of material remains in the bottom of the container, the container is considered “empty” and is not in itself a hazardous waste.
 - b. Emptied hazardous material containers may be disposed of as construction debris waste (i.e. non-hazardous).
 - 3. Personal protective clothing and safety equipment with de minimis or trace contamination.
- C. Keep premises in a clean and orderly condition during performance of all work.
- D. Place non-hazardous construction debris wastes in secure containers for local landfill disposal on a daily basis.

PART 4 - MEASUREMENT AND PAYMENT

- 4.1 BASE CONTRACT PRICE – All work specified in this Section shall be included in the Base Contract Price.

END OF SECTION

SECTION 02131

ASBESTOS ABATEMENT FOR INTERIORS

PART 1 - GENERAL

1.1 INTRODUCTION

Asbestos abatement in interior building spaces, covered walkways or porticos connecting buildings, and on outdoor mechanical systems which condition indoor air (such as air handling units, air conditioners, cooling towers, etc.) is governed by rules established by the Illinois Department of Public Health (IDPH). This specification section addresses or references the requirements for complying with IDPH, OSHA, and EPA NESHAP asbestos rules. Each and every rule requirement may not be restated in detail since trained, accredited, and licensed contractors and individuals are required for this work and are presumed to be familiar with the relevant laws and rules. Full regulatory compliance is required, and is a part of the contract, whether specifically stated herein or not.

Exterior building spaces are not subject to IDPH rules unless the abatement procedures involve interior spaces of the building. Roofing, window replacement, exterior transite sheeting, asbestos siding, asbestos-containing paint, caulking, glazing, flashings, cements, or other products installed on the building exterior are subject to OSHA and NESHAP rules which, in many cases are less rigorous than IDPH requirements. Abatement of these items is specified in separate, related specification sections.

1.2 DEFINITIONS

In addition to the terms listed below, all definitions in the laws and regulations listed in Section 1.5 are incorporated by reference, whether or not restated herein.

- A. Abatement Contractor (AC) means the entity responsible for performing the work in this section and has the training and accreditation to competently perform the work. This entity will obtain and maintain licenses required for the indoor work in this section.
- B. Architect of Record (AOR) means the entity that assembles the overall project bid documents and bid package, and approves the completed construction work.
- C. Asbestos Abatement Supervisor, hereinafter referred to as “supervisor” means a person retained by the AC, who supervises asbestos abatement workers. This person must be trained, accredited, and licensed as required, and must also meet OSHA “competent person” criteria for asbestos abatement.
- D. Asbestos Project Manager (APM) is the individual that performs asbestos abatement project monitoring, acts on behalf of CPS or its agents on the project, and performs “Project Manager” duties as defined by IDPH asbestos regulations. The APM may be a subcontractor to the Managing Environmental Consultant (MEC).
- E. Chicago Public Schools (CPS) means the owner of the property and the authority ordering the work

specified herein.

- F. General Contractor (GC) means the entity responsible for performing the complete scope of work in the Documents. If the GC self-performs any portion of the ACM abatement work, the GC must have the same credentials, training, accreditations and licenses required by the AC.
- G. HEPA Filter means a High Efficiency Particulate Air filter capable of trapping 99.97% percent of particles greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
- H. IDPH means the Illinois Department of Public Health.
- I. Managing Environmental Consultant (MEC) means the entity with overall responsibility for the environmental aspects of the project, including design, organization, direction, and control as well as investigations, assessments, and supervision of project managers.
- J. MSDS means Material Safety Data Sheet, required by OSHA for any chemicals in the workplace that that could be expected to cause an exposure to workers during normal use or in emergency situations.
- K. Board Authorized Representative means the entity responsible for overall project coordination and completion.
- L. Plasticize means to apply plastic sheeting over surfaces or objects to protect them from contamination or water damage.
- M. PPE (Personal Protection Equipment) means the protective suits, head and foot covers, gloves, respirators and other items used to protect persons from asbestos or other hazards.
- N. RCRA means the Resource Conservation and Recovery Act and associated regulations.
- O. TCLP means the Toxicity Characteristic Leaching Procedure as specified in EPA 530/SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods 3rd edition, November 1986.
- P. Work Area means the area or areas where asbestos abatement is being conducted.

1.3 SCOPE OF WORK

- A. Refer to Environmental Scope forms CPS-E30.1 included in Attachment A.

1.4 WORK INCLUDED

- A. The work includes all labor, equipment, materials, and supplies necessary to perform the Scope of work in the Documents by the procedures described herein. The contractor, by submitting a bid for the work, represents itself as knowledgeable and expert in the performance of the work, and includes all things usually and customarily necessary to provide a complete and finished job, whether specifically mentioned or not. Related work may be shown in other related documents, prepared by others, if applicable, and as listed below:
 - 1. 01010 - Summary of Work
 - 2. 01300 - Submittals

3. 01720 - Project Record Documents
 4. 02133 - Lead-Based Paint Abatement
 5. 02132 - Exterior Asbestos Abatement
- B. Removal of friable and non-friable asbestos-containing materials listed in the Documents, including pre-cleaning, moving of furnishings, establishing regulated areas, isolating the work areas, protection of adjacent areas, containment when required, cleanup and decontamination to the specified clearance levels, proper packaging and disposal of wastes, and all other steps necessary to complete the scope of work.
- C. Repair or replacement of damaged surfaces, fixtures, or furnishings to restore them to their pre-existing condition to the satisfaction of the Architect of Record and the Project Manager.
- D. When the Documents include lead and asbestos abatement items in the same spaces, they should be performed in the sequence and combinations that produce the most efficient results, minimize concentrated lead waste volume, and produce the least amount of total waste. That sequence will generally be:
1. Cleanup of lead dust, flakes, chips, and residues most likely to fail a TCLP test. If both lead and asbestos debris are present and mixed together, they may be cleaned up and disposed together.
 2. Cleanup and removal of failed or delaminated friable asbestos-containing debris, if any.
 3. Removal of friable asbestos materials and cleanup of visible residues.
 4. Removal of lead-bearing architectural components.
 5. Removal of non-friable asbestos items. If both asbestos and lead are on the same components, for example lead paint and asbestos-containing glazing compound, the components may be removed and disposed with both the lead and asbestos-bearing items intact.
 6. Removal of lead-based paint, coatings, or surfacing material.
 7. Final cleanup and decontamination of the work space. Final air clearance (asbestos) and wipe samples (lead) may be performed concurrently.
 8. When lead and asbestos final decontamination processes are combined, the more stringent cleanup procedures will apply for both.
 9. Waste disposal.
 - a. Hazardous waste: loose paint flakes, chips, and dust; lead-specific cleaning supplies; contaminated soil; combined final decontamination supplies; disposable suits, gloves, head covers, and foot covers; other items that fail a TCLP or other RCRA test.
 - b. Special waste: friable asbestos-containing waste materials and lead-contaminated waste that has passed TCLP or other RCRA tests.
 - c. Construction and demolition (C&D) debris: lead-bearing architectural components; concrete and lumber with or without tile or mastic attached; demolition debris, and other general wastes.
 - d. All asbestos-containing or lead-bearing wastes, regardless of classification, shall be disposed in a landfill approved by the IEPA to accept asbestos-containing or lead-bearing waste materials.
- E. Compliance with all applicable laws, regulations, standards, and these specifications. In the case of a conflict, the contractor will comply with the most stringent.
- F. Contractor is required to fully comply with IDPH rules and these specifications unless a variance is granted by IDPH. Any variances obtained by the MEC will be listed in the Documents.
- G. All licenses, accreditations, permits, fees, notifications, reports, or other documents required by law,

regulation, this specification, or the Documents.

- H. Provide project closeout documentation to the APM within thirty (30) days after final clearance. This documentation shall include, but is not limited to, items listed in paragraph 1-7, Submittals.

1.5 LAWS, REGULATIONS AND STANDARDS

- A. The following laws, regulations, and standards are incorporated by reference:
1. 105 ILCS 105: Illinois Asbestos Abatement Act
 2. 77 Ill. Adm. Code 855: Asbestos Abatement for Public and Private Schools and Commercial and Private Buildings in Illinois
 3. 29 CFR 1910: US OSHA General Industry Standards
 4. 29 CFR 1926: US OSHA Construction Standards
 5. 29 CFR 1926.1101: US OSHA Asbestos Construction Standards
 6. ASHARA: US EPA Asbestos School Hazard Abatement Reauthorization Act
 7. 40 CFR Part 61: US EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP), 11/90 revision
 8. 40 CFR 763 Subpart E: US EPA Asbestos Hazard Emergency Response Act (AHERA) Rules
 9. 40 CFR 763 Subpart E: US EPA Asbestos Model Accreditation Plan (MAP): Appendix C - Interim Final Rule

1.6 ASSESSMENT, MONITORING, TESTING AND ANALYSIS

- A. The MEC will perform inspection, testing and design services prior to the start of work, and during the project, and will perform testing, inspection, and monitoring services during the work and upon its completion:
1. Prior to the start of the work
 - a. The MEC shall identify suspect materials and confirm their asbestos content through review of the school's management plan or by testing.
 - b. The MEC will design the project and address any design changes if requested by the AOR/BAR.
 - c. The MEC shall collect background air samples before conditions are disturbed. Background samples will be analyzed by PCM.
 - d. Review and approve the pre-abatement submittals submitted by the AC.
 2. During the work, the MEC shall:
 - a. Enter the work area at least every two hours to inspect the work procedures and work area integrity.
 - b. Maintain a daily log to record the day's events, problems, corrective actions.
 - c. Collect air samples inside and outside the work area, and in the breathing zone of representative persons.
 - d. The MEC will stop the work if airborne asbestos concentrations outside the work area exceed 0.01 f/cc or the background sample levels, whichever is higher. The work may restart when the source of fiber release has been identified and corrected. Contractor will be responsible for cleaning and decontaminating the outside area if caused by the asbestos abatement activities.
 - e. Observe/document smoke testing of the containment by the contractor.
 - f. Review original worker licenses and maintain weekly submittals from the AC.
 - g. Notify the MEC's project designer if design changes are needed before execution.
 3. Upon completion of the work, the MEC shall:

- a. Inspect for visible debris. Contractor shall be required to re-clean the area or portions of areas until no visible debris remains and the work area is dry.
 - b. Perform aggressive clearance testing by Transmission Electron Microscopy (TEM) when the ACM in a work area is 260 linear feet, 160 square feet, or 35 cubic feet of volume or more, as required by AHERA and IDPH Section 855.170. The sample set shall include at least 5 inside samples, 5 outside samples, 2 field blanks and 1 sealed blank. **Note:** Large complicated, or multi-floor contiguous work areas connected by corridors, stairways, or other connections shall be tested using additional inside the work area samples. For clearance of multiple mini containments containing a total removal quantity greater than 160 square feet or 260 linear feet, a combined PCM/TEM final clearance procedure may be used. The first part of the procedure shall involve the collection and analysis of one PCM sample from within each mini containment. The second part shall involve the collection and analysis of five (5) TEM samples within the mini containments having the highest PCM analysis results. If there are five or fewer mini containments to be sampled, then only TEM sampling shall be conducted. A minimum of five (5) TEM samples shall be collected. All requirements of 40 CFR 763 Subpart E, Appendix A shall apply.
 - c. Perform aggressive clearance testing by Phase Contrast Microscopy (PCM) when the ACM in a work area is less than 260 linear feet, 160 square feet, or 35 cubic feet of volume.
 - d. Collect and analyze samples in accordance with AHERA Appendix A procedures and IDPH rule section 855.470.
 - e. Prepare and submit the IDPH "Project Manager's Summary Report Form" within 10 days of final clearance.
 - f. Prepare and submit the Project Manager Report to the IDPH within 60 working days of clearance testing. The final Project Manager is responsible for completion of the project report.
- B. The Contractor shall provide OSHA compliance air monitoring to determine exposures to its employees in accordance with OSHA 29 CFR 1926.1101. Frequency of testing will comply with OSHA requirements for the anticipated and actual exposure levels.
1. A written Exposure Assessment may be provided prior to the start of the work to determine the requirements for respiratory protection and frequency of OSHA monitoring for each type of activity. The contractor should note that a Negative Exposure Assessment (NEA) may be possible for many tasks. For interior work, this would allow reduced OSHA monitoring frequency.
 2. Analysis may be performed on site.
- C. Credentials required for testing and analysis of PCM final clearance air samples:
1. Accreditation by AIHA or AAR; or
 2. Participation in the Proficiency Analytical Testing (PAT) program.
 3. Certification of individual qualification to read samples on site when on site analysis is performed.

1.7 SUBMITTALS BY THE CONTRACTOR

- A. To IDPH, IEPA, MEC and AOR at least 10 working days before commencement of work:
 1. IDPH Asbestos Notification on current form, including inspector license number and landfill permit number.

2. Written permission from building owner authorizing contractor to commence abatement.
 3. Building owner asbestos abatement notification to building occupants and users.
 4. School Floor Tile Project Notice, when applicable.
- B. To MEC and AOR at least five days prior to commencement of Work:
1. Documentation of arrangements of transport and disposal, landfill name and location, handling procedures and PPE at the landfill, prepared and signed by the landfill.
 2. Drawings or sketches for layout and construction of isolation barriers and decontamination units.
 3. Respirators: NIOSH approvals and manufacturer certification of HEPA filtration for cartridges
 4. Manufacturers' certifications that all HEPA vacuums, negative air pressure equipment, and other local exhaust ventilation equipment conform to ANSI Z9.2-79
 5. Written notifications to rental companies for any rental equipment used.
 6. Results of any performance tests for encapsulants, if applicable.
 7. OSHA Exposure Assessment, if available.
 8. Laboratory and analyst credentials for contractor OSHA samples.
 9. Material Safety Data Sheets (MSDS) for chemicals used on site.
 10. Work Plan and Schedule.
- C. To MEC and AOR on the first day of abatement work:
1. Original contractor, supervisor, and worker licenses along with a copy each.
 2. Initial Course Accreditation and current refresher accreditation for each supervisor and worker.
 3. Physician's Written Opinions for workers and supervisors.
 4. Fit test documentation for all employees, agents.
- D. To MEC and AOR weekly during the abatement work:
1. Job progress reports detailing abatement activities, progress compared to schedule, problems and actions taken, injury reports, and equipment breakdowns.
 2. Waste Shipment Records.
 3. Work site Entry logs.
 4. Manometer readable tape for negative pressure differentials for each negative pressure worker enclosure or a log of digital readout.
 5. Filter Change logs for respirators, HEPA vacuums, negative air machines, and other engineering controls.
 6. OSHA compliance air monitoring data.
 7. Worker license and certification log.
- E. Prior to beginning work, the AC shall submit required notifications to applicable regulatory agencies and receive an Owners Authorization and Notice to Occupants from Chicago Public Schools for buildings where asbestos abatement will take place. The AC will provide copies of all regulatory notices to the CPS Environmental Services Manager and the EPM within 24 hours of sending such notices to the regulatory authority. The AC shall not begin a project until such notices are provided to CPS and the EPM.

PART 2 - PRODUCTS

2.1 TOOLS AND EQUIPMENT

All tools and equipment shall at least conform to minimum industry standards and IDPH regulations.

A. Equipment:

1. Negative Air Machines shall provide HEPA filtration and conform to ANSI Z9.2 fabrication criteria.
2. Respirators shall be NIOSH approved for use with lead, asbestos, or other contaminants anticipated in the work.
3. Contractor is fully responsible for complying with OSHA rules for other Safety equipment, such as hard hats, safety harnesses, eye protection, gloves, footwear, and any other safety devices used on the site.
4. Pressure differential manometer with readable tape shall be provided by the contractor, including calibration documentation.

B. Tools:

1. Shovels and scoops shall be rubber or plastic, suitable for use in a plasticized containment. Metal shovels are not permitted.
2. Scrapers, brushes, utility knives and other hand tools shall be of good quality and suitable for the intended uses. The contractor shall keep an ample supply on hand for the completion of the work.
3. Power tools such as, but not limited to saws, pneumatic chisels, brushes, sanders, and needle guns shall be equipped with shrouds and HEPA-filtered local exhaust systems to capture released particles.
4. Buffers are not permitted.

2.2 MATERIALS

All materials shall at least conform to minimum industry standards and IDPH regulations.

A. Installed materials which become a part of the work such as, but not limited to, encapsulants shall be of good quality, non-lead-bearing, free of asbestos, and conform to the respective reinstallation specification sections prepared by others.

1. Contractor shall ensure that encapsulants and sealants used as primers, basecoats, or covering existing materials are compatible with the respective existing or reinstallation materials and their manufacturers' warranties.
2. Encapsulants for surfaces to which fireproofing will be applied (beams, columns, floor or roof decks, other structural members) shall be tested and rated as a component of the fireproofing system and listed in the UL Fire Resistance Directory with the specific fireproofing material to be installed.

B. Abatement materials

1. Fire-retardant Poly sheeting for all applications shall be 6 mil nominal thickness for critical seals, floors, ceilings and drop cloths, and 4 mil for walls.
2. Tape shall be 2" or 3" duct tape or other waterproof tape suitable for joining poly seams and

- attaching poly sheeting to surfaces.
- 3. Spray adhesives shall be non-flammable and free of methylene chloride solvents.
- 4. Disposal bags shall be 6 mil.
- 5. Disposable suits, hoods, and foot coverings shall be TYVEK or similar.
- 6. Solvents shall be compatible with any primers, mastics, adhesives, paints, coatings, or other surfacing materials to be installed following their use.

PART 3 - EXECUTION

3.1 EMPLOYEE TRAINING, QUALIFICATION AND MEDICAL SCREENING

- A. Supervisors and Workers shall be trained, accredited, and licensed in accordance with IDPH rules.
 - 1. Contractor shall keep copies of licenses and most recent annual refresher training certificate at the jobsite at all times for all contractor personnel.
 - 2. An IDPH- licensed supervisor (competent person) shall be present at the worksite at all times when work under this section is being conducted.
 - 3. Current fit testing documentation.
- B. Medical Screening. All contractor personnel shall have a current medical examination in accordance with OSHA requirements. Copies of the Physician's Written Opinions shall be kept on site.

3.2 PERMISSIBLE EXPOSURE LIMITS

- A. The OSHA permissible exposure limit (PEL) for worker exposure to airborne asbestos is 0.1 f/cc as an 8-hour time-weighted average (TWA).
- B. The OSHA short term excursion limit for worker exposure to airborne asbestos is 1.0 f/cc for a 30 minute sample.
- C. The permissible level of airborne fibers in areas adjacent to the work area is 0.01 f/cc or background level, whichever is higher, as determined by phase contrast microscopy (PCM).
 - 1. Work shall immediately cease in any work area where the airborne fiber concentrations exceed this level.
 - 2. The source of outside contamination shall be determined, and corrective measures (e.g. wet cleaning, changes in work practices, negative pressure containment) will be implemented to prevent recurrence.
 - 3. The contractor shall be responsible for cleanup of contamination in adjacent areas caused by the asbestos abatement activities at no additional cost to the building owner.

3.3 EXPOSURE ASSESSMENT AND MONITORING

- A. The Contractor shall make an assessment of the airborne exposures. Assessment shall conform to OSHA requirements and may be based upon:
 - 1. Initial monitoring of representative workers who the contractor believes are exposed to the

- greatest airborne concentrations of asbestos, or
 - 2. Past monitoring (within the past 12 months) or objective data for conditions closely resembling the processes, type of material, control methods, work practices and environmental conditions to be used for this project, or
 - 3. In the absence of an exposure assessment, the contractor shall perform the work in full negative pressure containment with Type C pressure-demand respirator with auxiliary SCBA escape bottle.
- B. The contractor shall perform personal monitoring in accordance with the following requirements:
- 1. Initially, to establish an exposure assessment when past monitoring or objective data are not available for an initial determination.
 - 2. Periodically if the exposures are, or are expected to be, below the PEL.
 - a. Whenever there has been a change of equipment, process, control, personnel, or a new task has been initiated that may affect employee exposures, the exposure assessment shall be updated, and monitoring shall be reinstated if exposures are unknown or are expected to exceed the PEL.
 - 3. Daily, if exposures are above the PEL.

3.4 RESPIRATORY PROTECTION

- A. Respiratory protection shall be worn by all persons potentially exposed to airborne asbestos fibers from the start of the abatement project until all areas have passed clearance air monitoring, in accordance with all applicable regulations incorporated by reference in 1.5 A.
- B. Contractors must have a respiratory protection program in compliance with all applicable regulations incorporated by reference in 1.5 A.

3.5 HYGIENE PRACTICES

- A. Eating, drinking, smoking, chewing gum or tobacco, and applying of cosmetics are not allowed in the work area.
- B. All persons entering the work area are required to wear appropriate PPE, and follow the entry and exit procedures posted in the Personnel Decontamination Enclosure System.
- C. Personal Protection Equipment (PPE) shall include:
 - 1. Full body disposable suits, headgear, and footwear.
 - 2. Gloves.
 - 3. Safety glasses
 - 4. Hardhats.
 - 5. Non-disposable footwear and clothing shall remain in the work area and shall be disposed of as contaminated waste when the job is completed.
 - 6. Authorized visitors shall be provided with suitable PPE.

3.6 PROHIBITED ACTIVITIES

- A. Dry removal or dry sweeping.

- B. Use of compressed air for cleaning.
- C. Use of high speed power tools not equipped with a HEPA-filtered local exhaust system.
- D. The abatement contractor shall not execute abatement activities without asbestos abatement design drawings that have been signed by an IDPH licensed Asbestos Designer are on the job site. Any and all changes to containment layout and placement shall not be executed until revised design drawings that have been approved and signed by an IDPH licensed Asbestos Designer are on the job site.
- E. Buffers cannot be used to remove mastic.

3.7 WORK AREA ISOLATION AND PREPARATION

- A. General Preparation. Contractor shall:
 - 1. Post:
 - a. Caution signs meeting the specifications of OSHA 29 CFR 1926.1101 (k)(6) at any location and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels.
 - b. Decontamination and work procedures in equipment rooms and clean rooms.
 - c. EPA NESHAP asbestos rules (40 CFR Part 61, subparts A & M) in the clean room.
 - d. OSHA Asbestos Construction Standards (29 CFR 1926.1101) in the clean room.
 - e. Entry and Exit Log
 - f. List of telephone numbers in the clean room for:
 - i) local hospital and/or local emergency squad.
 - ii) school security office (if applicable).
 - iii) owner representative reachable 24 hours per day.
 - iv) contractor's headquarters.
 - v) architects or consultants directly involved in the project.
 - 2. Secure the work area from entry by unauthorized persons.
 - 3. Separate Work Areas from Occupied Areas
 - a. Seal off all doorways and corridors which will not be used for passage during work.
 - b. Install IDPH required separation barriers per section 855.430 (a) in all openings larger than 4 ft by 8 ft, consisting of wood or metal framing, a sheathing material such as plywood or drywall at least 5/8" thick on the work side, and double-layer 6-mil poly, both sides. Edges shall be caulked at the floor, ceiling, walls, and fixtures to form an air-tight seal.
 - c. If the school is not totally occupied (see Section 855.430), the sheathing material may be omitted.
 - 4. Separate Occupied areas from secured areas
 - a. Install IDPH barriers per section 855.430 (b)
- B. Interior Preparation.
 - 1. Shut down and lock out electric power to all work areas. Provide temporary power from an outside source with ground-fault circuit interrupter (GFCI) at the source.
 - 2. Shut down and isolate heating, cooling, and ventilating air systems. Remove HVAC filters, package and dispose as asbestos waste. (Need to discuss filter removal and disposal in light of replacement costs and clarify that this applies when work happens in a mech system and not in classrooms)
 - 3. Pre-clean movable objects with HEPA vacuums or wet cleaning and remove from the work

- area to a location designated by the MEC *where friable ACBM is involved.*
4. Pre-clean fixed items which must remain in the work area with HEPA vacuums or wet cleaning where friable ACBM is involved.
 5. Wrap all fixed objects and equipment which will remain in the work area with a minimum of one layer of six mil poly.
 6. Remove/protect carpeting per environmental scope sheets.
 7. Pre-clean the work area with HEPA vacuums or wet cleaning.
 8. Seal off all windows, corridors, doorways, skylights, ducts, grilles, diffusers, and other penetrations or openings in walls, ceilings and floors with 6-mil poly and tape.
 9. Cover floors with two layers of fire-retardant 6-mil poly with seams staggered and taped, and extending 12" up walls. Cover walls with two layers of 4-mil poly, with each wall poly overlapping each floor poly layers by 12".
 10. Asbestos materials shall not be disturbed during the preparation phase.
 11. Suspended ceilings shall remain in place until preparation phase is complete. Remove/protect ceiling tile per environmental scope sheets.
 12. Maintain emergency and fire exits.
 13. Install a five chamber Worker Decontamination Enclosure System, consisting of clean room, shower room, and dirty room separated by airlocks at least 3' wide, all with curtained doorways, of sufficient size to serve the size of the crew, and with all features required by IDPH rules.
 - a. Where a remote decon unit is used (i.e. non-friable ACBM and TSI glovebag operations), the AC shall:
 - 1) set up the decon unit within the work area barriers
 - 2) establish a negative pressure of at least 0.02" water column (wc) between the dirty room and adjacent spaces, including the clean room
 - 3) provide at least 4 air changes per hour within the decon unit
 - 4) use a double suiting procedure where the workers proceed to the work area exit, HEPA-vacuum gross debris from their persons using a "buddy system" put on a clean suit (either over their dirty suit or after removing the dirty suit), assure that their footwear are free of ACM contamination, and follow a designated path to the remote decon unit.
 - 5) Once in the decon unit, follow normal decontamination procedures.
 14. Install an Equipment Decontamination Enclosure System, consisting of a washing station and a holding area, with curtained doorways and a lockable door.
 15. Maintain a negative pressure of at least 0.02" water column (wc) between each contained area and adjacent spaces 24 hours a day using negative air machines vented to the outside, from the start of abatement work to final clearance. Backup negative air machines shall be available onsite in case of machine failure.
 16. Once operational, the system shall be inspected daily with smoke tubes by the contractor. Damages and defects will be repaired immediately upon discovery.
- C. Exterior Preparation (for areas that interface with interior work)
1. 6 mil plastic sheeting shall be placed over the ground, foundation, or other surfaces below the abatement area.
 2. Unauthorized entry shall be prevented by using appropriate barriers, such as warning tape, fencing, or other suitable barriers.
 3. Nearby air intakes, grilles, and other openings into the building interior shall be sealed off with poly and tape.
 4. The contractor shall be responsible for cleanup of any adjacent areas that become contaminated as a result of the abatement activities at no additional cost to the building owner.

3.8 ABATEMENT PROCEDURES

A. REMOVAL:

1. Asbestos materials shall be adequately wetted and kept adequately wet during removal.
2. ACM waste shall be bagged or containerized as it is removed.
3. Work areas shall be kept wet until visible material is cleaned up.

B. Encapsulation:

1. Damaged or missing areas of existing materials shall be repaired with non-asbestos substitutes, where appropriate.
2. Loose or hanging ACM shall be removed using appropriate removal procedures.
3. Bridging encapsulants shall be applied in accordance with manufacturer's instructions.
4. Penetrating encapsulants shall be applied to penetrate existing materials to the substrate.
5. Encapsulants shall be applied with airless spray equipment.
6. Encapsulated ACM shall be labeled as asbestos to prevent future unprotected disturbance.

C. Enclosure:

1. Locations where openings for hangers, supports, framing, or other attachments must be made in the ACM must be misted with water and kept damp to reduce airborne fiber release. Tools used to drill, cut, or otherwise disturb the ACM during attachment installation shall be equipped with a HEPA-filtered local exhaust system.
2. Loose or hanging ACM shall be removed using removal procedures.
3. Damaged areas shall be repaired with non-asbestos materials.
4. Utilities or other items requiring access shall be relocated outside of the enclosure area. Once enclosures are installed, they shall not be opened or disturbed.
5. Enclosure materials shall be impact resistant and provide an airtight barrier.
6. Enclosures shall be labeled that they contain asbestos materials to prevent future unprotected disturbance.

3.9 CLEANING AND DECONTAMINATION

Cleaning and decontamination of abatement areas, excluding glovebag areas, are as follows:

- #### A. All visible accumulations of ACM, debris, tools, and unnecessary equipment shall be removed from the work area.

B. First clean:

1. Wet clean all surfaces and remove excess water.
2. Wait 12 hours before proceeding further to allow dust and fibers to settle.
3. Remove outer layer of poly and dispose as ACM waste.
4. Completion of First Clean shall be determined and documented by the MEC.

C. Second clean:

1. Wet clean all surfaces and remove excess water.
2. Wait 12 hours before proceeding further to allow dust and fibers to settle.
3. Remove inner layer of poly and dispose as ACM waste.
4. Critical barriers on windows, doors, penetrations, and other openings shall remain in place and negative air system shall remain in continuous operation until final clearance tests have passed.
5. Completion of Second Clean shall be determined and documented by the MEC.

- D. Third clean:
 - 1. Wet clean all surfaces and remove excess water.
 - 2. Wait 12 hours before proceeding further to allow dust and fibers to settle.
 - 3. Remove all tools, cleaning materials, remaining wastes from the work area. Tools and equipment shall be cleaned before removal.
 - 4. Third Clean shall be determined and documented by the MEC.
- E. Visual inspection: MEC and contractor shall jointly inspect the work area for visible residue and excess water and, if observed, repeat the clean/12 hour wait cycle until residues are not detected and work area is dry.
- F. Apply lock-down encapsulants where specified in the Documents.
- G. MEC will inform AC if the work area is ready for final clearance testing.

3.10 FINAL CLEARANCE

- A. Final clearance testing (aggressive methods) shall be performed after 12 hours have lapsed since the final cleaning, and when visual inspection has been completed and no visible water or condensation remains.
- B. Work areas with 260 linear feet or 160 square feet or more of ACM shall be tested using aggressive sample collection methods and Transmission Electron Microscopy (TEM) analysis, as required by AHERA and IDPH Section 855.170. The sample set must include at least 5 inside samples, 5 outside samples, 2 field blanks, and 1 sealed blank. NOTE: Large, complicated, or multi-floor contiguous work areas connected by corridors, stairways, or other connections may be tested with a larger "inside" sample set rather than full, multiple TEM tests, so long as the inside sample distribution is reasonably representative of the work area conditions.
- C. Work areas with less than 260 linear feet or 160 square feet may be tested using aggressive sample collection methods and analyzed by Phase Contrast Microscopy (PCM).
- D. If final clearance test(s) fail, the AC is responsible for repeating the cleaning sequence as necessary until final clearance tests are successful. All expenses associated with the collection and analysis of additional final clearance tests are the responsibility of the AC.

3.11 SPECIAL PROCEDURES

Less stringent requirements may apply in a number of cases.

- A. Variances from IDPH Regulations. Variances may be requested and approved by the IDPH. These less stringent procedures may only be used when they have been requested by the Project Designer and approved by the IDPH on a case-by-case basis.
 - 1. Variances that have been applied for the project will be listed in the Documents. These variances may or may not be approved by the IDPH.
 - 2. The contractor is encouraged to request additional variances it believes will be beneficial to the project. Such requests shall be submitted to the Project Designer (MEC) as a value engineering proposal which references the IDPH regulation section, describes the procedure variations, includes information which supports the efficacy and benefits of the alternative

- procedures, and offers appropriate cost savings.
 3. Otherwise the contractor is required to fully adhere to the requirements of this specification. Failure to obtain a variance shall not constitute a change in the requirements of these documents.
- B. Operations and Maintenance Procedures where minor areas of ACM must be disturbed for building repairs, such as drilling holes in walls or floors, cleaning small areas to allow installation of fixtures, smoke detectors, etc. The Documents will state if these procedures are allowed for a particular project or task.
1. Submit an asbestos notification to the IDPH for quantities over 3 linear or square feet.
 2. Licensed abatement workers are required, but a licensed abatement contractor is not mandatory for work less than 3 linear or square feet.
 3. Shut down heating, cooling, or ventilating air systems to prevent fiber dispersal to other areas.
 4. Seal off openings in the work area, including windows, doorways, vents, and other openings with 6 mil poly sheeting and tape.
 5. Lay an impermeable drop cloth under the work.
 6. Wear appropriate PPE and at least a 1/2 mask APR respirator. Note that OSHA still requires an exposure assessment and respirators that are appropriate for the expected airborne fiber concentrations.
 7. Use wet removal methods.
 8. Wet clean work area, leaving no visible residue.
 9. Package and dispose of asbestos-containing waste as specified in the waste disposal section.
- C. Glovebag Procedure. Glovebags may be used to remove pipe and duct insulation.
1. Normal IDPH Notification requirements apply to quantities of more than 3 linear or square feet.
 2. Glovebag removal will require a single layer, 6 mil poly tent containment (mini-containment) with negative pressure air filtration.
 3. Monitoring will be performed for each contained area by the MEC:
 - a. 1 personal sample
 - b. 1 area sample
 - c. 1 area sample at each negative pressure machine exhaust
 4. Glovebag construction shall be 6 mil poly with seamless bottom, suitable for the intended use (straight runs, fittings, elbows, vertical pipes, etc.) without modification.
 5. At least two licensed workers shall perform glovebag operations.
 6. Workers shall wear full body PPE and at least a 1/2 mask APR respirator. Note here, too, that OSHA still requires an exposure assessment and respirators that are appropriate for the expected airborne fiber concentrations.
 7. Prior to use, all loose or damaged material adjacent to the operation shall be wrapped in two layers of 6 mil poly or otherwise be rendered intact.
 8. Work Practices shall include:
 - a. installation to completely cover the circumference of pipe or other structure. Pipe insulation diameter shall not exceed 1/2 the bag working length above the glove sleeves.
 - b. smoke test for leaks and seal any leaks prior to use.
 - c. glove bag shall be single use and not moved once it is placed.
 - d. wet removal methods on the materials to be removed and wet cleaning to remove all visible ACM from the pipe or structure surfaces.
 - e. not to be used on surfaces having temperatures greater than 150⁰F.
 - f. spray down the interior surfaces of the bag, substrate, and removed ACM.
 - g. first and second cleaning, waiting at least 12 hours following each cleaning.

- h. wet down remaining ACM surfaces or seal with encapsulant.
 - i. seal off the lower portion of the bag containing the ACM waste by twisting several times and sealing with tape.
 - j. collapse glovebag with a HEPA vacuum.
 - k. slip a 6 mil poly waste disposal bag over the glovebag, detach the bag from the pipe, and gooseneck-seal it in the waste disposal bag.
 - l. dispose in accordance with this specification.
- D. Resilient Floor Covering. Removal of resilient floor covering will be performed by, as a minimum, those trained in accordance with OSHA Class 2 requirements, using heat guns, infrared heat machines or other methods that remove the floor covering in whole pieces. Buffing machines may not be used for removal of mastic. The contractor shall insure that no damage is caused to the area or equipment below the floor. Abatement procedures are as follows:
1. Submit the Floor Tile Project Notice at least 10 working days prior to the beginning of all asbestos resilient floor covering abatement projects.
 2. Post signs so that the work area cannot be entered from any direction without observing a sign.
 3. Isolate the work area from areas to remain occupied.
 4. Install barriers of six mil plastic sheeting sealed with duct tape at all openings in the work area.
 5. Install a curtained doorway at the entry to the work area, lock out electrical power to the room and supply required power with ground fault interruption protected circuits.
 6. Wear, as a minimum, half-faced dual cartridge NIOSH-approved respirators and double disposable suits.
 7. Remove floor covering without causing excessive breakage. Work will stop and appropriate IDPH design, project management and air sampling will be put in place if excessive breakage occurs (>10% of the removed floor tiles).
 8. Dispose of floor covering and debris as asbestos waste.
 9. HEPA vacuum the work area thoroughly following completion of the removal.
 10. HEPA vacuum surface of protective clothing and dispose of clothing as asbestos waste.
 11. Personal air monitoring will be performed by the contractor in accordance with OSHA.
- E. Electrical Wiring Insulation: Removal of the electrical wiring insulation shall be performed by licensed asbestos abatement contractor under full-containment. This work is considered gross removal work. All work shall be performed in compliance with laws, regulations, and standards listed in the Section 1.5 of these specifications. If IDPH approves any variances for this project, they will be provided to the abatement contractor prior to the start of the project. The abatement shall be performed as follows:
1. Contractor shall provide submittals as per Section 1.7 of these specifications.
 2. The contractor supervisor shall inform all abatement workers about electrical safety and require them to work in accordance with all applicable safety requirements while working on and around electrical system components.
 3. Work area shall be isolated and prepared as per procedures provided in the Section 3.7 of these specifications.
 4. Contractor shall verify that electrical power to wiring within the work area is locked out /Tagged out for the duration of the project until final air clearance is achieved. Contractor shall verify that a competent person has de-energized, locked out, tagged out and tested the electrical lines involved in this project to ensure lock out/tag out was successful. Water shall not be sprayed around wiring and/or other electrical system components. Moist rag or mops

shall be used as needed. Contractor shall keep work area free of any standing water throughout this project.

5. Disconnect wire at both ends without cutting wire or otherwise disturbing wire insulation. Remove wires intact, by pulling them from one access point (preferably at the panel or switch) and rolling them up directly into an asbestos waste bag (or a glove-bag, where feasible)..
6. HEPA vacuum shall be used continuously while wires are being pulled out, in order to minimize the airborne dispersal of asbestos fibers. Wet rags shall be utilized to moist the wiring insulation as the wire is being pulled out and rolled-up in order to minimize the release of asbestos fibers.
7. The conduit and other surfaces which were in contact with wires shall be cleaned utilizing HEPA Vacuum. Moist rags/sponges shall be pulled through the conduits so as to clean the conduit surfaces after wires have been pulled out of the conduit.
8. Cleaning and Decontamination of work area shall be performed as per Section 3.9 of this specification. Contractor shall keep the work area free of any standing water throughout this project. Water shall not be sprayed around wiring and/or other electrical system components. HEPA vacuum and moist rags shall be used for cleanup and decontamination.
9. Clearance of the work area shall be performed as per Section 3.10 of this specification.

3.12 WASTE DISPOSAL AND EQUIPMENT LOAD-OUT

A. Preparing equipment for load-out.

1. Seal openings to prevent escape of internal contamination; or open up equipment, remove filters, and make equipment interiors accessible for cleaning and decontamination.
2. HEPA vacuum and wet wipe all equipment before removal

B. Packaging asbestos wastes:

1. All asbestos-containing wastes, including removed ACM and debris, containment poly, critical barrier materials, suits, respirator filters, vacuum and negative air machine HEPA filters, water filters, and other asbestos-containing items shall be properly packaged for disposal.
2. Use double 6 mil plastic bags with “gooseneck” seal, or other impermeable containers.
3. Wrap large or irregular items in 2 layers of 6 mil poly sheeting, seal with tape, and affix required labeling.
4. Sharp, jagged, or other items (floor tiles, screws, nails, metal debris, wood etc.)that may puncture poly shall be packaged in rigid impermeable containers such as drums or boxes, or wrapped in burlap or other protective covering before sealing in double bags or double layers of 6 mil poly.
5. Label containers:
 - a. OSHA warning label.
 - b. DOT performance-oriented hazardous material label.
 - c. Name and address of generator and abatement location.

C. Removing items from the work area:

1. Packaged asbestos wastes, non-porous debris (such as ceiling grid, doors, hardware, and other items that can be decontaminated), and equipment shall be wet cleaned, moved into the equipment decontamination enclosure system, cleaned a second time, and moved into the holding area.
2. Containers and equipment shall be removed from the holding area by workers in clean PPE and respirators who enter from the uncontaminated side (outside). The equipment decontamination enclosure system shall not be used to enter or exit the work area.

3. Waste shall be placed in a cart and covered. A plastic runner shall be placed on the floor to the waste storage area. The loaded cart shall be carefully taken to and unloaded into the enclosed waste storage container.
- D. Storage of packaged asbestos wastes shall be in a completely enclosed dumpster or other suitable container that can be secured. The secured area shall be kept locked at all times to prevent unauthorized access.
- E. Shipment of items from the project.
 1. Decontaminated tools and equipment may be shipped by normal carrier to warehouse, another jobsite, or other destination.
 2. For asbestos wastes:
 - a. Line shipping container with 6 mil poly prior to loading packaged asbestos wastes.
 - b. Post NESHAP placards during loading.
 - c. Persons performing loading operations shall wear PPE and respirators.
 - d. Containers and packages shall be tightly packed together to prevent shifting during transport. Large components or heavy items shall be secured to prevent shifting, and shall not be stacked on top of bags.
 - e. Execute the NESHAP-required Waste Shipment Record (WSR) to be signed by the generator, transporter, and landfill. All WSRs shall be returned to the MEC within 30 days of shipment.
 - f. ACBM waste shall be transported from the work site directly to the landfill.
- F. Disposal of packaged asbestos wastes.
 1. Only landfills approved and permitted by Illinois for accepting asbestos wastes may be used for disposal.

3.13 DEMOBILIZATION

- A. MEC shall inspect the work area for evidence of visible debris prior to releasing the area for tear-down. Detection of contamination will require additional cleaning and re-testing of the work area.
- B. Remove critical barriers and seals.
- C. Restore previously-removed items, if specified in the Documents:
 1. Re-mount fixtures and other previously dismantled objects.
 2. Return moveable objects to their original locations.
 3. Install new filters in HVAC systems where filters were previously removed.
 4. Re-establish electric systems and other utilities that were shut down or locked out.
- D. A punch list walk-through shall be conducted for each cleared work area within two working days of clearance testing by the MEC, contractor, school engineer, property advisor, principal, and AOR. All punch list items shall be completed within five working days of walk through.

ATTACHMENT

Appendix A Environmental Scope form CPS-E30.1

CPS Control Rev: 3_05/08/08
Project Rev: A_04/16/10

END OF SECTION

SECTION 02132

ASBESTOS ABATEMENT FOR EXTERIORS

PART 1 - GENERAL

1.1 INTRODUCTION

Exterior building spaces are not covered by Illinois Department of Public Health (IDPH) rules, except for covered hallways or porticos connecting buildings and outdoor mechanical systems which condition indoor air (such as air handling units, air conditioners, cooling towers, etc.), or when interior building spaces are involved.

Roofing, window replacement, exterior transite sheeting, galbestos siding, asbestos-containing paint, caulking, glazing, flashings, cements, or other products installed on the building exterior are subject to Occupational Safety and Health Administration (OSHA) and National Emission Standards for Hazardous Air Pollutants (NESHAP) rules which, in many cases are less rigorous than IDPH requirements. All exterior asbestos abatement activities shall be conducted from the exterior of the building. At no time shall any work activity be staged from the interior of the building. Abatement of roofing materials requires supervision by a competent person that can be employed by the roofing contractor (refer to definition of competent person below). Abatement of these items is specified in this section. Related paragraphs in the Interior Abatement section may be referenced or included where relevant.

1.2 DEFINITIONS

In addition to the terms listed below, all definitions in the laws and regulations listed in Section 1.5 are incorporated by reference, whether or not restated herein.

- A. Abatement Contractor (AC) means the entity responsible for performing the work in this section and has the training and accreditation to competently perform the work. This entity will obtain and maintain licenses required for the indoor work in this section.
- B. Architect of Record (AOR) means the entity that assembles the overall documents and bid package, and approves the work.
- C. Asbestos Abatement Supervisor, hereinafter referred to as Supervisor means any person who supervises asbestos abatement workers. This person must be trained, accredited, and meet OSHA competent person criteria for asbestos abatement.
- D. Board Authorized Representative means the entity responsible for overall project coordination and completion.
- E. Chicago Public Schools (CPS) means the owner of the property and the authority ordering the work specified herein.
- F. CDOE means Chicago Department of Environment.

- G. Competent person means one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f); in addition, for roofing materials (considered Class II work) who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent.
- H. Environmental Project Manager (EPM) is the project manager selected by the MEC to perform environmental monitoring and act on behalf of the MEC for CPS or its agents on the project.
- I. General Contractor (GC) means the entity responsible for performing the complete scope of work in the Documents. The GC may elect to self-perform or subcontract out any portion of the work.
- J. HEPA Filter means a High Efficiency Particulate Air filter capable of trapping 99.97% percent of particles greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
- K. IDPH means the Illinois Department of Public Health.
- L. Managing Environmental Consultant (MEC) means the entity with overall responsibility for the environmental aspects of the project, including design, organization, direction, and control as well as investigations, assessments and on-site supervision of project managers.
- M. MSDS means Material Safety Data Sheet, required by OSHA for any chemical in the workplace that that could be expected to cause an exposure to workers during normal use or in emergency situations.
- N. Plasticize means to apply plastic sheeting over surfaces or objects to protect them from contamination or water damage.
- O. PPE (Personal Protection Equipment) means the protective suits, head and foot covers, gloves, respirators and other items used to protect persons from asbestos or other hazards.
- P. RCRA means the Resource Conservation and Recovery Act and associated regulations.
- Q. TCLP means the Toxicity Characteristic Leaching Procedure as specified in EPA 530/SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods 3rd edition, November 1986.
- R. Work Area means the area or areas where asbestos abatement is being conducted.

1.3 SCOPE OF WORK

- A. Refer to Environmental Scope forms CPS-E30.1 included in Attachment A.

1.4 WORK INCLUDED

- A. The work includes all labor, equipment, materials, and supplies necessary to perform the scope of work in the Documents by the procedures described herein. The abatement contractor, by submitting a bid for the work, represents itself as knowledgeable and expert in the performance of the work, and includes all things necessary to provide a complete and finished job, whether

specifically mentioned or not. Related work may be shown in other related documents, prepared by others, if applicable, and as listed below.

1. 01010 - Summary of Work
 2. 01300 - Submittals
 3. 01720 - Project Record Documents
 4. 02131 - Interior Asbestos Abatement
 5. 02133 - Lead-Based Paint Abatement
 6. 07070 - Roofing Removal
- B. Removal of friable and non-friable asbestos-containing materials listed in the Documents, including isolating the work areas, protection of adjacent areas, cleanup, proper packaging and disposal of wastes, and all other steps necessary to complete the scope of work.
- C. Repair or replacement of damaged surfaces, fixtures, or furnishings to restore them to like new condition to the satisfaction of the Architect or Board Authorized Representative or MEC.
- D. When the Documents include lead and asbestos abatement items in the same spaces, typically windows, painted-over transite sheeting, and flashings, the work should be performed in the sequence and combinations that produce the most efficient results, minimize concentrated lead waste volume, and produce the least amount of total waste. That sequence will generally be:
1. Cleanup and removal of lead dust, flakes, chips, peeling paint, and residues most likely to fail a TCLP test.
 2. Removal of asbestos materials and cleanup of visible residues.
 3. Removal of lead-bearing architectural components.
 4. Removal of non-friable asbestos items. If both asbestos and lead are on the same components, for example lead paint and asbestos-containing glazing compound, the components may be removed and disposed with both the lead and asbestos-bearing items intact.
 5. Final cleanup and decontamination of the work space. Final air clearance (asbestos) and wipe samples (lead) may be performed concurrently.
 6. When lead and asbestos final decontamination processes are combined, the more stringent cleanup procedures will apply for both.
 7. Waste disposal.
 - a. Classified waste: loose paint flakes, chips, and dust; lead-specific cleaning supplies; contaminated soil; combined final decontamination supplies; disposable suits, gloves, headcovers, and footcovers; other items that fail a TCLP test.
 - b. Special waste: friable asbestos-containing waste materials and lead-contaminated waste that has passed TCLP or other RCRA tests.
 - c. Construction and demolition (C&D) debris: non-friable asbestos-containing waste materials (such as, but not limited to intact transite, mastics, packing, caulking); lead-bearing architectural components; demolition debris, and other general wastes.
 - d. All asbestos-containing or lead-bearing wastes, regardless of classification, shall be disposed in an IEPA-approved landfill within the State of Illinois to accept asbestos-containing or lead-bearing waste materials.
- E. Compliance with all applicable laws, regulations, standards, and these specifications. In the case of a conflict, the contractor will comply with the most stringent.
- F. All licenses, accreditations, permits, fees, notifications, reports, or other documents required by law, regulation, this specification, or the Documents.

- G. Provide project closeout documentation to the Environmental Project Manager (EPM) within thirty (30) days after final clearance. This documentation shall include, but is not limited to, items listed in paragraph 1-7, Submittals.

1.5 LAWS, REGULATIONS AND STANDARDS

- A. The following laws, regulations, and standards are incorporated by reference:
 - 1. 29 CFR 1910 - US OSHA General Industry Standards
 - 2. 29 CFR 1926 - US OSHA Construction Standards
 - 3. 29 CFR 1926.1101 - US OSHA Asbestos Construction Standards
 - 4. 40 CFR Part 61 - US EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP), 11/90 revision
 - 5. 40 CFR Part 763 Subpart E - US EPA Asbestos Model Accreditation Plan (MAP):
Appendix C Interim Final Rule

1.6 ASSESSMENT, MONITORING, TESTING AND ANALYSIS

- A. The MEC will perform inspection, testing and design services prior to the start of work, and during the project, if necessary. The MEC will also perform testing, inspection, and monitoring services during the work and upon its completion:
 - 1. Prior to the start of the work, the MEC shall
 - a. Identify suspect materials and confirm their asbestos content through review of the school's documentation or by testing;
 - b. Design the project and address any design changes as requested. Approved changes shall be submitted to the IDPH, when necessary.
 - 2. During the work, the MEC shall:
 - a. Observe the work periodically, with sufficient frequency to ensure contractor compliance.
 - b. Collect area air samples in and around the work area, as needed, to verify exposure conditions.
 - c. Stop the work if airborne asbestos concentrations at the work area perimeter exceed 0.01 f/cc. Contractor will be responsible for taking corrective action to reduce exposure levels and prevent recurrence; cleaning adjacent areas that become contaminated by the asbestos abatement activities.
 - d. Make copies of contractor licenses from the originals.
 - e. Complete design changes that are needed.
 - 3. Upon completion of the work, the MEC shall:
 - a. Visually inspect for visible dust and debris, and verify the full completion of the work.
 - b. Require contractor to re-clean the area or portions of areas until no visible debris remains.
 - c. Perform clearance air sampling at the completion of the work activities, when necessary.
- B. The abatement contractor shall provide OSHA compliance air monitoring to determine exposures to its employees in accordance with OSHA 29 CFR 1926.1101. Frequency of monitoring will comply with OSHA requirements for the anticipated and actual exposure levels.
 - 1. A written Exposure Assessment with air sampling and analysis conducted 6 months or less prior to the start of the work to determine the requirements for respiratory protection and

- frequency of OSHA monitoring for each type of activity. The contractor should note that a Negative Exposure Assessment (NEA) may be possible for these tasks.
 - 2. Analysis may be performed on site.
- C. Credentials required for testing and analysis of PCM air samples:
- 1. Air sampling shall be conducted by an IDPH licensed Air Sampling Professional.
 - 2. Accreditation by AIHA or AAR; or
 - 3. Participation in the Proficiency Analytical Testing (PAT) program.

1.7 SUBMITTALS BY THE CONTRACTOR (SUBMITTED TO AOR AND MEC):

The following shall be submitted to the MEC no less than 10 days prior to the start of the asbestos abatement work activities.

- A. Ten (10) day NESHAP notification to the Illinois EPA and the Chicago Department of Environment when the asbestos quantities reach or exceed 260 linear feet or 160 square feet. Two (2) day IDPH notification with a copy to CDOE for asbestos abatement quantities less than 260 linear feet or 160 square feet.
- 1. Ten (10) day IEPA Asbestos Notification on revised form, including inspector licensenumber and landfill permit number.
 - 2. Evidence that all abatement contractor employees in the work areas are trained and accredited in accordance with OSHA, NESHAP, and EPA MAP requirements:
 - a. Current Annual refresher training certificate.
 - b. Current IDPH asbestos license
 - c. Current physician's written opinion
 - d. Current respirator fit test for negative pressure respirators when respirators are used.
 - 3. Copy of OSHA Exposure Assessment, with air sampling and analysis conducted 6 months or less prior to the start date of the abatement project.
 - 4. OSHA compliance air monitoring records generated during the project.
 - 5. Waste Shipment Records.
 - 6. Worker license and certification log.
 - 7. Material Safety Data Sheets (MSDS) for chemicals used on site.
 - 8. Work Plan and Schedule.
- B. Prior to beginning work, the AC shall submit required notifications to applicable regulatory agencies and receive an Owners Authorization and Notice to Occupants from Chicago Public Schools for buildings where asbestos abatement will take place. The AC will provide copies of all regulatory notices to the CPS Environmental Services Manager and the EPM within 24 hours of sending such notices to the regulatory authority. The AC shall not begin a project until such notices are provided to CPS and the EPM.

PART 2 - PRODUCTS

2.1 TOOLS AND EQUIPMENT

All equipment shall at least conform to minimum industry standards:

- A. Equipment:
 - 1. Respirators shall be NIOSH approved for use with lead, asbestos, or other contaminants anticipated in the work.
 - 2. Contractor is fully responsible for complying with OSHA rules for other Safety equipment, such as hard hats, safety harnesses, eye protection, gloves, footwear, and any other safety devices used on the site.
- B. Tools:
 - 1. Ladders, scaffolding and all other rigging devices shall be constructed in a safe manor meeting all regulatory and permitting requirements.
 - 2. Power tools such as, but not limited to saws, pneumatic chisels, brushes, sanders, and needle guns shall be equipped with shrouds and HEPA-filtered local exhaust systems to capture released particles. Power tools shall also be grounded using a ground fault Circuit Interrupter (GFI) breaker or outlet.

2.2 MATERIALS

- A. Installed materials which become a part of the work such as, but not limited to, encapsulants foam sealants and permanent enclosures shall be of good quality, non-lead-bearing, free of asbestos, and conform to the respective reinstallation specification sections.
 - 1. Contractor shall ensure that encapsulants and sealants used as primers, basecoats, fillers or covering existing materials are compatible with the respective existing or reinstallation materials and their manufacturers' warranties.
- B. Abatement materials
 - 1. Poly sheeting for all applications shall be 6 mil nominal thickness.
 - 2. Tape shall be 2 inch or 3 inch duct tape or other waterproof tape suitable for joining poly seams and attaching poly sheeting to surfaces.
 - 3. Spray adhesives shall be non-flammable and free of methylene chloride solvents.
 - 4. Disposal bags shall be 6 mil.
 - 5. Disposable suits, hoods, and foot coverings shall be TYVEK or similar.
 - 6. Solvents shall be compatible with any primers, mastics, adhesives, paints, coatings, or other surfacing materials to be installed following their use.

PART 3 - EXECUTION

3.1 EMPLOYEE TRAINING, QUALIFICATION AND MEDICAL SCREENING

- A. Supervisors and Workers shall be trained, accredited, and licensed in accordance with IDPH rules and regulations:
 - 1. Contractor shall keep copies of licenses, initial training course certificate, and most recent annual refresher training certificate at the jobsite at all times for all contractor personnel.
 - 2. A Supervisor (competent person) shall be present at the work site at all times when work under this section is being conducted.
- B. Medical Screening. All contractor personnel shall have a current medical examination in accordance with OSHA requirements. Copies of the Physician's Written Opinions shall be kept on site along

with a current fit test certificate.

3.2 PERMISSIBLE EXPOSURE LIMITS

- A. The OSHA permissible exposure limit (PEL) for worker exposure to airborne fibers is 0.1 f/cc as an 8-hour time-weighted average (TWA).
- B. The OSHA short term excursion limit (STEL) for worker exposure to airborne fibers is 1.0 f/cc for a 30 minute sample.

3.3 EXPOSURE ASSESSMENT AND MONITORING

- A. The abatement contractor shall make an assessment of the airborne exposures. Assessment shall conform to OSHA requirements and may be based upon:
 - 1. Initial monitoring of representative workers who the contractor believes are exposed to the greatest airborne concentrations of asbestos, or
 - 2. Past monitoring (within the past 12 months) or objective data for conditions closely resembling the processes, type of material, control methods, work practices and environmental conditions to be used for this Documents, or
 - 3. In the absence of an exposure assessment the contractor shall perform the work in full negative pressure containment with Type C pressure-demand respirator with auxiliary SCBA escape bottle.
- B. The contractor shall perform personal monitoring in accordance with the following requirements:
 - 1. Initially, to establish an exposure assessment when past monitoring or objective data are not available for an initial determination.
 - 2. Daily, if the exposures are, or are expected to be, above the PEL of 0.1 f/cc.
 - 3. Periodically if the exposures are, or are expected to be, below the PEL.
 - 4. Whenever there has been a change of equipment, process, control, personnel, or a new task has been initiated that may affect employee exposures, the exposure assessment shall be updated, and monitoring shall be reinstated if exposures are unknown or are expected to exceed the PEL.
 - 5. Area Monitoring is required at the perimeter of the work area to verify that exposures to adjacent areas are below the PEL.

3.4 RESPIRATORY PROTECTION

Respiratory protection shall be worn by all persons potentially exposed to airborne asbestos fibers from the start of the abatement project until air monitoring analysis results prove otherwise.

3.5 HYGIENE PRACTICES

- A. Eating, drinking, smoking, chewing gum or tobacco, and applying of cosmetics are not allowed in the work area.
- B. All persons entering the work area shall wear appropriate PPE.

- C. When the use of a Personnel Decontamination Enclosure System is deemed necessary by the MEC, the abatement contractor shall follow all entry and exit procedures posted in the Personnel Decontamination Enclosure System.
- D. Personal Protection Equipment (PPE) shall include:
 - 1. Full body disposable suits, headgear, and footwear.
 - 2. Gloves.
 - 3. Hard hats.
 - 4. Non-disposable footwear and clothing shall remain in the work area and shall be disposed of as contaminated waste when the job is completed.
 - 5. Authorized visitors shall be provided with suitable PPE when required in the work area.
 - 6. PPE is required when exposures are, or are expected to be above the PEL.
- E. A Personnel Decontamination (decon) Facility is required when worker exposures are expected to be above the PEL. The Decontamination unit may be remotely located if not feasible to locate adjacent to the work area.
 - 1. Establish a negative pressure of at least 0.02 inch wc between the dirty equipment room and adjacent spaces, including the clean room. Assume Negative Air Machines (NAM) operate at 80% design capacity.
 - 2. Provide at least 4 air changes per hour within the decon unit
 - 3. All personnel shall use a double-suiting procedure for traveling between work areas and decon. Persons shall HEPA-vacuum the exterior of their disposable suits at the entry to the work area, put on a clean suit over the existing suit, and proceed to the decon unit for shower decontamination and change into street clothes.
- F. To exit, persons shall HEPA-vacuum down clothing at the work area entry, and leave the work area. When disposable suits are used, they shall be HEPA-vacuumed, stripped off, and deposited in an asbestos disposal bag. Personnel may then leave the work area.

3.6 PROHIBITED ACTIVITIES

- A. Dry removal or dry sweeping, except:
 - 1. During freezing weather. In this case, temperature and weather conditions must be recorded at the start, during, and at the end of the shift.
 - 2. On roofs with 3:1 slope or greater. In this case, roofing shall be removed in an intact condition, as much as possible.
 - 3. When equipment damage or other hazard exists. In this case, written permission from IEPA is required prior to performing dry removal.
- B. Use of compressed air for cleaning.
- C. Use of high speed power tools not equipped with a HEPA-filtered local exhaust system.
- D. Eating, drinking, smoking, chewing gum, or applying cosmetics in the work area.
- E. Removing respirators or other PPE in the work area.

3.7 WORK AREA ISOLATION AND PREPARATION

- A. General Preparation
 - 1. Post caution signs meeting the specifications of OSHA 29 CFR 1926.1101 (k)(6) at any location and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels.
 - 2. Secure the work area from entry by unauthorized persons.

- B. Exterior Preparation
 - 1. 6 mil plastic sheeting shall be placed over the ground, foundation, or other surfaces below the abatement area.
 - 2. Unauthorized entry shall be prevented by using appropriate barriers, such as warning tape, fencing, or other suitable barriers.
 - 3. Nearby air intakes, grilles, windows, and other openings into the building interior above, below, or beside the work area that could be exposed to released airborne dust shall be closed or otherwise sealed off with poly and tape.
 - 4. All electric power in the work area shall be protected with Ground-Fault Circuit Interrupters.

3.8 ABATEMENT PROCEDURES

- A. General Removal Requirements:
 - 1. Asbestos materials shall be wetted and kept wet during removal.
 - 2. ACM shall be bagged or containerized as it is removed. Wastes shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered via covered, dust-tight chute, crane, hoist, or other means that prevent the wastes from being dropped or thrown.
 - 3. Appropriate OSHA protection shall be provided when working from exterior access:
 - a. Scaffolding shall be equipped with handrails and midrails designed to provide fall protection, or full-body safety harnesses shall be worn and tied off to a secure anchor point.
 - b. Workers in manlifts shall wear full body harnesses and tie to the tie-off point provided on the manlift basket whenever the basket is elevated from ground level.
 - c. The contractor shall ensure that scaffolding, manlifts and the workers erecting and using the equipment meet all federal, state and local regulations and requirements including the acquisition of all required permits for the erection and use of such equipment.

- B. Window Replacements: Asbestos-containing materials are most likely to be found in exterior caulking and glazing putty. Windows may be removed under this section if ACM is handled from the building exterior. If ACM materials must be accessed from inside the building or ACM wastes must be transported through the building interior, then IDPH-regulated Interior Asbestos Abatement for Interiors, Section 02131, requirements will apply at no additional cost to the building owner. For exterior work:
 - 1. Close windows and seal from the inside by covering with 6 mil poly and tape, or by applying tape directly to window joints and seams.
 - 2. Any ACM not required to be disturbed for window removal should be left in place (e.g. window pane glazing).
 - 3. ACM that must be disturbed (e.g. caulking at the edge of the window frame) must be removed completely, including three-dimensional residues.
 - 4. Collect debris and deposit in asbestos waste bags as the work proceeds. Do not allow wastes to accumulate on surfaces.
 - 5. Abate ACM and LBP on all window components to remain in place.

C. Roofing

1. General: Remove ACM roof mastics, cements, underlayments, and flashings in an intact state to the extent feasible. Asbestos-containing shingles may occasionally break even when removed carefully. The fact that otherwise intact roofing materials become separated or broken does not by itself render them non-intact. However, if they become pulverized, reduced to powder or dust, they have become non-intact.
 - a. The contractor shall take care to minimize the amount of roofing material damage, or;
 - b. If the materials are rendered non-intact, the contractor shall employ methods to contain the dust and debris and utilize hygiene practices appropriate for friable (OSHA Class I) ACM, including PPE, decontamination units, and monitoring. Monitoring may include area samples at the work area perimeter to determine that airborne asbestos fibers are not being released in concentrations above the PEL.
2. Built-up roofing and asphalt shingles:
 - a. Power cutting machines shall be equipped with a HEPA-filtered dust collection system and shall be misted during use.
 - b. Dust generated by the cutting operation shall be collected with HEPA vacuums or wet cleaning methods.
3. Rigid roofing materials, such as cement asbestos shingles: remove intact and minimize breakage.

D. Transite, Galbestos sheeting (galvanized metal with a baked-on asbestos paint), Asbestos/Cement pipe, or other rigid panels shall be removed using wet methods.

E. Other

1. Non-LBP paint and other coatings, electric cable insulation or joint coverings, and other miscellaneous materials that are to be removed with the substrate or that can be removed without becoming friable may be removed as intact (OSHA Class II, EPA NESHAP Category I or II non-friable) in accordance with procedures described in the General and Roofing Sections 3.8 A. and C.
2. Non-LBP paint, coatings, and other miscellaneous materials that must be removed from the substrate or that otherwise will become friable must be removed as non-intact (OSHA Class I, EPA NESHAP friable) in accordance with procedures described in General and Roofing Sections 3.8 A. and C.1.b.

3.9 CLEANING AND DECONTAMINATION

- A. All visible accumulations of ACM, debris, tools, and unnecessary equipment shall be removed from the work area.
- B. Protective poly shall be folded in on itself, rolled up, placed in asbestos disposal bags, and disposed as asbestos waste.
- C. Surfaces which have been exposed to friable ACM or its dust shall be HEPA vacuumed
- D. Dry sweeping of surfaces which have been exposed to friable ACM or its dust is not permitted.

3.10 FINAL CLEARANCE

- A. Cleaning may be discontinued when there is no visible debris and area air monitoring verifies that exposures are below the PEL. If any area air monitoring analysis results demonstrate results are at or above the PEL, the abatement contractor is responsible for repeating the cleaning as necessary until tests are satisfactory. All expenses associated with the collection and analysis of additional air monitoring tests are the responsibility of the abatement contractor.

3.11 WASTE DISPOSAL AND EQUIPMENT LOAD-OUT

- A. Roofing waste may be loaded in bulk into lined enclosed receptacles, such as dumpsters or trailers. Receptacles shall be closeable and lockable to provide security and to prevent air emissions.
- B. Packaged asbestos wastes:
 - 1. Asbestos-containing wastes, including removed ACM and debris, poly, critical barrier materials, suits, respirator filters, vacuum HEPA filters, water filters, and other asbestos-containing items shall be properly packaged for disposal.
 - 2. Use 6 mil plastic bags with gooseneck seal, or other impermeable containers.
 - 3. Wrap large or irregular items in 6 mil poly sheeting and seal with tape.
 - 4. Sharp, jagged, or other items that may puncture poly shall be packaged in rigid impermeable containers such as drums or boxes, or wrapped in burlap or other protective covering before sealing in bags or poly sheeting.
 - 5. Label containers for friable ACM waste:
 - a. OSHA warning label.
 - b. DOT performance-oriented hazardous material label.
 - c. Name and address of generator and abatement location.
- C. Removing items from the work area:
 - 1. Packaged asbestos wastes shall be HEPA-vacuumed before removing from the work area.
- D. Storage of packaged asbestos wastes shall be in a completely enclosed dumpster, or other suitable container that can be secured. The secured area shall be kept locked at all times to prevent unauthorized access.
- E. Shipment of items from the project.
 - 1. Decontaminated tools and equipment may be shipped by normal carrier to warehouse, another jobsite, or other destination.
 - 2. For asbestos wastes:
 - a. Line enclosed shipping container with 6 mil poly prior to loading packaged friable asbestos wastes.
 - b. Post NESHAP placards during loading of friable asbestos wastes.
 - c. Execute the NESHAP-required Waste Shipment Record (WSR) to be signed by the generator, transporter, and landfill. All WSRs shall be returned to the MEC within 30 days of shipment.
 - d. ACM waste shall be transported from the work site directly to the landfill.
- F. Disposal of packaged asbestos wastes.
 - 1. Only landfills approved and permitted by Illinois for accepting asbestos wastes may be used for disposal.

- G. A punch list walk-through shall be conducted for each cleared work area within two working days of clearance testing by the MEC, contractor, school engineer, property advisor, principal, and AOR. All punch list items shall be completed within five working days of walk through.

ATTACHMENT

Appendix A Environmental Scope form CPS-E30.1

END OF SECTION

SECTION 02133

LEAD-BASED PAINT MITIGATION/ABATEMENT

PART 1 - GENERAL

1.1 INTRODUCTION

- A. The Illinois Department of Public Health regulations apply to all facilities occupied by children 6 years old or younger. The Chicago Department of Public Health inspects for, and regulates, lead contamination in all Chicago school facilities. Mitigation or abatement of all interior and exterior lead-bearing substances is covered by these specifications.

1.2 DEFINITIONS

In addition to the terms listed below, all definitions in the laws and regulations listed in Section 1.5 are incorporated by reference, whether or not restated herein.

- A. Abatement means the work area preparation, complete removal of lead-bearing substances, and cleanup of surrounding work area to prescribed levels of decontamination.
- B. Abatement Contractor (AC) means the entity responsible for performing the work in this section, with the training and accreditation to competently perform the work. This entity will obtain and maintain any licenses required for the work in this section.
- C. Architect of Record (AOR) means the entity that assembles the overall documents and bid package, and approves the work.
- D. CDPH means the Chicago Department of Public Health.
- E. Environmental Project Manager (EPM) is the person selected by the MEC to perform environmental monitoring and act on behalf of the CPS or its agents on the project.
- F. General Contractor (GC) means the entity responsible for performing the complete scope of work in the Documents. The GC may elect to self-perform or subcontract out any portion of the work. If the GC acts as the AC, it must have the same credentials, training, accreditations and licenses required by the AC.
- G. HEPA Filter means a High Efficiency Particulate Air filter capable of trapping 99.97% percent of particles greater than 0.3 micrometers in mass median aerodynamic equivalent diameter.
- H. IDPH means the Illinois Department of Public Health.
- I. Lead Abatement Contractor/Supervisor, hereinafter referred to as "supervisor" means any person who supervises lead abatement workers. This person must be trained, accredited, and licensed as required, and must also meet OSHA "competent person" criteria for lead abatement.

- J. Lead-Based Paint means paints or coatings that are lead bearing substances as defined by IDPH regulations referenced in section 1.5.
- K. Lead Bearing Soil means soil containing an amount of lead in excess of applicable guidelines.
- L. Lead Bearing Substance means any dust on surfaces or furniture or other non-permanent items and any paint or other surface coating material as defined by IDPH regulations referenced in section 1.5.
- M. Managing Environmental Consultant (MEC) means the entity with overall responsibility for the environmental aspects of the project, including design, organization, direction, oversight and control as well as investigations, assessments, and supervision of project manager.
- N. Mitigation means work area preparation to repair lead-bearing substances to an intact state so that the lead bearing substance does not pose an immediate health hazard.
- O. MSDS means Material Safety Data Sheet, required by OSHA for any chemical in the workplace that that could be expected to cause an exposure to workers during normal use or in emergency situations.
- P. OSHA means the federal Occupational Health and Safety Administration
- Q. Owners Representative (OR) means the entity responsible for overall project coordination and completion.
- R. Plasticize means to apply plastic sheeting over surfaces or objects to protect them from contamination or water damage.
- S. RCRA means the Resource Conservation and Recovery Act and associated regulations as referenced in section 1.5.
- T. TCLP means the Toxicity Characteristic Leaching Procedure as specified in EPA 530/SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods 3rd edition, November 1986
- U. Wet Cleaning means cleaning all surfaces with a phosphate-free lead dissolving detergent.
- V. Work Area means areas where lead abatement or mitigation activities are conducted.
- W. Work Site means the room or rooms undergoing lead abatement or mitigation activities. All closets/book rooms/coat hanger rooms/vestibules/washrooms within a room are considered part of the work site in which mitigation work has been identified on the drawings, whether or not they are numbered separately.

1.3 WORK INCLUDED

- A. The work includes all labor, equipment, materials, and supplies necessary to perform the Scope of Work in the Documents by the procedures described herein. The contractor, by submitting a bid for the work, represents itself as knowledgeable and expert in the performance of the work, and includes all things usually and customarily necessary to provide a complete and finished

job, whether specifically mentioned or not. Related work may be shown in other related documents prepared by others, if applicable and as listed below:

1. 01010 - Summary of Work
 2. 01300 - Submittals
 3. 01720 - Project Record Documents
 4. 02131 - Interior Asbestos Abatement
 5. 02132 - Exterior Asbestos Abatement
 6. 02134 – Animal Excrement and Carcass Abatement
 7. 09900 - Finish Painting
 8. 09901 - Renovation Painting
 9. 09910 - Surface Preparation for Renovation Painting
- B. Clean-up of lead-bearing dust, flakes, and residues; mitigation or abatement of paint, architectural components, substrates, or other lead-bearing items listed in the Documents including pre-cleaning, moving of furnishings, establishing regulated areas, isolating the work areas, protection of adjacent surfaces, containment when required, cleanup and decontamination to the specified clearance levels, proper packaging and disposal of wastes, and all other steps necessary to complete the scope of work.
- C. Repair or replacement of damaged surfaces, fixtures, or furnishings to restore them to their pre-existing condition to the satisfaction of the OR, MEC and school engineer.
- D. When the Documents include lead and asbestos abatement items in the same spaces, they should be performed in the sequence and combinations that produce the most efficient results and the least amount of total waste. That sequence will generally be:
1. Cleanup and removal of failed or delaminated friable asbestos-containing debris, if any.
 2. Cleanup of lead dust, flakes, chips, and residues. If these lead wastes are mixed with asbestos debris, they must be disposed together as regulated lead waste or asbestos waste depending on TCLP results.
 3. Removal of friable asbestos materials and cleanup of visible residues.
 4. Removal of architectural components with lead-based paint still adhered, such as wood trim, doors, plaster, drywall, window frames, etc.
 5. Removal of non-friable asbestos materials from the exterior. If both asbestos and lead are on the same components, for example lead paint and asbestos-containing glazing compound, the components may be removed and disposed as construction debris as long as both the lead- and asbestos-bearing materials remain intact.
 6. Removal of lead-based paint, coatings, or surfacing material.
 7. Final cleanup and decontamination of the work space. Final air clearance (asbestos) and wipe samples (lead) may be performed concurrently.
 8. When lead and asbestos work is combined, the more stringent regulations and procedures will apply for both.
 9. Waste disposal.
 - a. Classified waste: loose paint flakes, chips, and dust; lead cleaning and decontamination supplies; combined final decontamination supplies; contaminated soil; disposable suits, gloves, head covers, and foot covers; respirator, vacuum, or negative air machine filters; or other items likely to fail a TCLP or RCRA test.
 - b. Special waste: asbestos-containing waste materials and lead-contaminated waste that has passed TCLP or other RCRA tests.

- c. Construction and demolition (C&D) debris: lead-bearing architectural components; cleaned poly sheeting from lead projects; concrete and lumber without tile or mastic attached, demolition debris, and other general wastes.
 - d. All asbestos-containing or lead-bearing wastes shall be disposed in a facility permitted to accept asbestos-containing or lead-bearing waste materials.
- E. Compliance with all applicable laws, regulations, standards, and these specifications. In the case of a conflict, the contractor will comply with the most stringent.
- F. All licenses, accreditations, permits, notifications, reports, or other documents required by law, regulation, this specification, or the Documents.

1.4 SCOPE OF WORK

Refer to Environmental Scope forms CPS-E30.1 included in Attachment A.

1.5 LAWS, REGULATIONS, AND STANDARDS

- A. CPS contractors shall maintain compliance with all applicable current laws, regulations, and standards including, but not limited to those listed below which are incorporated by reference:
1. 410 ILCS 45: Illinois Lead Poisoning Prevention Act
 2. 7-4-110 & 7-4-120: Municipal Code of the City of Chicago
 3. 77IAC845: Illinois Lead Poisoning Prevention Code (Revision 8/1/2000)
 4. 29 CFR 1910: US OSHA General Industry Standards
 5. 29 CFR 1926: US OSHA Construction Standards
 6. HUD Guidelines: Lead Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing, except Chapter Seven (1995); Chapter 7 of the Guidelines, Lead Based Paint Inspection (Revised, 1997)
 7. 40 CFR Part 61: US EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP)
 8. 40 CFR Part 261: Identification and Listing of Hazardous Waste (Resource Conservation and Recovery Act, RCRA)
- B. Regulatory changes shall be incorporated into this specification on their effective date. Contractors shall reflect these changes into ongoing projects without any additional notice or cost to Chicago Public Schools.

1.6 ASSESSMENT, MONITORING, TESTING, AND ANALYSIS

- A. The MEC will perform inspection, testing, and monitoring services during the work and upon its completion:
1. Testing of coatings, soils, dust, and debris to determine the presence of lead or other hazardous substances.
 2. Area air monitoring during the work to determine the airborne concentrations of lead inside and outside of the work area. The EPM shall stop the work if airborne lead concentrations outside the work area exceed the OSHA Action Level of 30 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) as an 8-hour time-weighted average. The work may re-start

when the source of lead release has been identified and resolved, and corrective measures have been instituted to prevent recurrence.

B. The Abatement Contractor shall perform:

1. An Exposure Assessment prior to the start of the work to determine the requirements for respiratory protection and frequency of OSHA monitoring for each type of activity.
2. Perform OSHA compliance air monitoring to determine exposures to its employees in accordance with regulations referenced in section 1.5.

C. Credentials required for analysis of lead:

1. Accreditation by AIHA or AALA; or
2. Participation in the Environmental Lead Proficiency Analytical Testing (ELPAT) program or Environmental Lead Laboratory Accreditation Program (ELLAP); or
3. Participation in the Proficiency in Analytical Testing (PAT) for metals analysis.

1.7 SUBMITTALS

A. The Abatement Contractor (AC) shall submit the following information to the EPM:

1. Written notification to Illinois Department of Public Health
2. Written Notification to CDPH.
3. Evidence that all contractor employees in the work areas are licensed, trained and accredited in accordance with OSHA, NESHAP, and EPA MAP requirements:
 - a. Current refresher training certificate.
 - b. Current IDPH lead license
 - c. Current physician's written opinion
 - d. Current respirator fit test data.
4. Copy of OSHA Exposure Assessment, if available.
5. OSHA compliance air monitoring records generated during the project.
6. Waste Shipment Records.
7. Worker license and certification log.
8. Material Safety Data Sheets (MSDS) for chemicals used on site.
9. Work Plan and Schedule.
10. Laboratory or analyst credentials and proficiency certificates for contractor samples.

B. Prior to beginning work, the AC shall submit required notifications to applicable regulatory agencies and receive an Owners Authorization and Notice to Occupants from Chicago Public Schools for buildings where lead mitigation or abatement will take place. The AC will provide copies of all regulatory notices to the CPS Environmental Services Manager and the EPM within 24 hours of sending such notices to the regulatory authority. The AC shall not begin a project until such notices are provided to CPS and the EPM.

1.8 RECORDKEEPING

A. AC shall retain records for 6 years:

1. name and address of the contractor who performed the project
2. location of the project

3. summary of abatement techniques used
4. location of the disposal site for lead-based substances removed from the work site
5. starting and completion dates of the lead abatement project

PART 2 - PRODUCTS

2.1 TOOLS AND EQUIPMENT

All equipment shall at least conform to minimum industry standards.

A. Equipment:

1. Negative Air Machines shall provide HEPA filtration and conform to ANSI Z9.2 fabrication criteria.
2. The AC should ensure that respirators are NIOSH approved for use with lead, asbestos, or other contaminants anticipated in the work.
3. Contractor is fully responsible for complying with OSHA rules for other Safety equipment, such as hard hats, safety harnesses, eye protection, gloves, footwear, and any other safety devices used on the site.

B. Tools:

1. Shovels and scoops shall be suitable for use in a plasticized containment. Plastic or rubber models are preferred, but metal shovels are acceptable when used with care to prevent damage to poly sheeting and permanent surfaces. Appropriate tape may be applied to the leading edges to aid in poly damage prevention.
2. Scrapers, wire and bristle brushes, utility knives and other hand tools shall be of good quality and suitable for the intended uses. The contractor shall keep an ample supply on hand for the completion of the work.
3. Power tools such as, but not limited to saws, pneumatic chisels, brushes, sanders, and needle guns shall be equipped with shrouds and HEPA-filtered local exhaust systems to capture released particles.

2.2 MATERIALS

A. Installed materials which become a part of the work such as, but not limited to, primers, paints, surfacing compounds, and other surface coverings or finishes shall be new unless specified otherwise, of good quality, non-lead-bearing, and shall conform to the respective reinstallation specification sections.

B. Abatement materials

1. Poly sheeting for all applications shall be 6 mil nominal thickness for all applications.
2. Tape shall be 2" or 3" tape suitable for joining poly seams and attaching poly sheeting to surfaces.
3. Spray adhesives shall be non-flammable and free of methylene chloride solvents.
4. Chemicals used for LBP removal and cleanup shall be free of methylene chloride solvents. The chemicals shall be low-odor and free of volatile compounds.
5. Disposal bags shall be 6 mil where used for single-bagging, and minimum 4 mil where used for double-bagging.
6. Disposable suits, hoods, and foot coverings shall be TYVEK or similar.

7. Solvents shall be compatible with any primers, paints, coatings, or other surfacing materials to be installed following their use.
8. Cleaning solutions shall cause lead to chelate, precipitate, or otherwise effectively release lead from surfaces. Cleaning solutions shall not leave residue on surfaces to be painted.

PART 3 - EXECUTION

3.1 EMPLOYEE TRAINING, QUALIFICATION AND MEDICAL SCREENING

- A. Supervisors and Workers shall be trained, accredited, and licensed in accordance with IDPH rules.
 1. Contractor shall keep current, up-to-date copies of licenses at the job site at all times.
 2. A licensed supervisor (competent person) shall be present at the work site at all times when work under this section is being conducted.
- B. Medical Screening shall be instituted for contractor's employees in accordance with regulations referenced in section 1.5. Medical certificates shall be current.

3.2 PERMISSIBLE LIMITS

- A. Permissible Limits of lead in lead bearing substances. Substances with lead content below the following levels are not regulated and are not subject to the requirements of this section:
 1. 5,000 parts per million (ppm), or 0.5% lead by weight in any substance. However, note that OSHA regulations apply to any operation that releases lead into the air in concentrations in excess of the action level of $30 \mu\text{g}/\text{m}^3$ (see ¶B.1. below), and the CDPH will require remedial action when dust contains greater than $40 \mu\text{g}/\text{sf}$ (see ¶A.4 below) of surface area. Actions such as sandblasting, dry sanding, or other dry aggressive abrasive disturbances can generate lead concentrations greater than either of these limits on substances with lower lead contents and, in such instances, will be required to adhere to this specification, regardless of substance lead content.
 2. 400 micrograms per gram ($\mu\text{g}/\text{g}$) of soil in high contact play areas.
 3. 400 micrograms per gram ($\mu\text{g}/\text{g}$) of soil in other areas.
 4. 40 micrograms per square foot ($\mu\text{g}/\text{sf}$) of surface area of dust on interior floors.
 5. 200 micrograms per square foot ($\mu\text{g}/\text{sf}$) of surface area of dust on other surfaces.
- B. Permissible Exposure Limits for contractor employees:
 1. No person shall be exposed to a lead concentration in excess the regulations referenced in section 1.5
 2. Where exposures exceed regulated levels, medical monitoring shall be instituted by the AC in accordance with the regulations referenced in section 1.5.

3.3 EXPOSURE ASSESSMENT AND MONITORING

- A. The AC shall make an assessment of the exposures expected by the tasks to be used for the scope of work listed in the Documents. Assessment may be based upon:
 1. Initial monitoring of representative workers who the contractor believes are exposed to the greatest airborne concentrations of lead, or

2. Past monitoring (within the past 12 months) or objective data for conditions closely resembling the processes, type of material, control methods, work practices and environmental conditions to be used for this Documents, or
3. In the absence of an exposure assessment or monitoring, the contractor shall assume the following exposure conditions:
 - a. $\leq 400 \mu\text{g}/\text{m}^3$ for manual demolition of lead-bearing substances (i.e., drywall, other architectural components), manual scraping, manual sanding, heat gun use, and power tool cleaning with dust collection systems, or any other task where there is reason to believe an employee may be exposed to airborne lead.
 - b. $\leq 2,500 \mu\text{g}/\text{m}^3$ for lead burning, rivet busting, power tool cleaning without dust collection systems, cleanup of dry spent abrasives, or movement or removal of abrasive blasting enclosures.
 - c. $> 2,500 \mu\text{g}/\text{m}^3$ for abrasive blasting, welding, cutting, and torch burning.

- B. The contractor shall perform personal monitoring in accordance with the regulations referenced in section 1.5
- C. The contractor may be required to perform air monitoring outside the work area if there is observance of contamination escape from the work area (such as dust accumulation), or evidence of failure of control methods to contain the release of airborne lead particles.

3.4 RESPIRATORY PROTECTION

- A. Respiratory protection shall be worn in accordance with all applicable regulations noted in section 1.5.

3.5 HYGIENE PRACTICES

- A. Eating, drinking, smoking, and applying of cosmetics are not allowed in the work site or area.
- B. A changing area and shower shall be provided for changing into and removing personal protective clothing, and for showering or washing before leaving the work area. Any person leaving the work site or work area shall rinse his or her mouth with potable water and wash hands and face thoroughly before eating drinking, or smoking. A portable lavatory facility, potable water supply, or portable decontamination unit shall be provided by the contractor for the washing of face and hands before any mitigation and/or abatement activities are started. School lavatory facilities shall not be used.
- C. Equipment decontamination procedures shall be employed to prevent the spread of lead contamination. Disposable items shall not be reused and shall be disposed of properly.
- D. Personal Protection Equipment (PPE) shall include:
 1. Full body suits with hoods and shoe covers. Tyvek or similar disposable suits may be worn only once, and must be disposed in accordance with the Waste Disposal section.
 2. Appropriate PPE shall be used as required by regulations referenced in section 1.5 and established industry practice.

3.6 PROHIBITED ACTIVITIES

- A. The following methods shall not be permitted:
 - 1. open flame burning
 - 2. dry-sanding
 - 3. uncontained hydro-blasting or sandblasting
 - 4. use of methylene chloride
 - 5. dry-scraping

3.7 WORK AREA ISOLATION AND PREPARATION

- A. General Preparation
 - 1. Post caution signs at all entrances and exits to the work area in accordance with OSHA rules:
 - a. at least 20" x 14"
 - b. date and location of the lead abatement project
 - c. Wording at least 2" high stating, "Caution, Lead Hazard, Do Not Remain in Work Area Unless Authorized"
 - 2. Secure the work area from entry by children, pregnant women, school staff or other unauthorized persons.
 - 3. Close off the work site from other portions of the building by closing doors tightly, taping shut when necessary, or with 6 mil poly z-flap curtains over doorways or entrances to the work site.
 - 4. At work area exit, provide walk-off pan, wet towel, or other means to prevent tracking lead contamination to other parts of the facility. A protective liner that is watertight shall be placed under the walk-off pan, wet towel, to prevent damage to the underlying surface.
- B. Interior Preparation
 - 1. Furniture, personal items, and other moveable objects in the work site shall be protected with 6 mil poly sheeting and sealed with tape, or moved from the work site and stored in a location designated by the MEC. Items shall be cleaned before being moved to another area to prevent cross-contamination.
 - 2. Turn off all forced air ventilation and seal exhaust and intake points in the worksite.
 - 3. Turn off electrical circuits in the work area to isolate them from contact. Provide temporary power equipped with Ground-Fault Circuit Interrupter (GFCI) devices to prevent electric hazards in the wet working environments. Power cords must be in good condition, not spliced, not more than 100 feet long, and shall be suspended off the floor and out of workers' way to protect the cords from damage. Cords must not be fastened with staples, hung from nails, or suspended with wire.
 - 4. Seal the opening seams of all food storage units, such as cabinets or refrigerators, or cover with poly sheeting taped securely in place.
 - 5. Cover all objects that cannot be moved, such as radiators, stoves, cabinets, built-in furniture, bookcases, or other stationary items with 6 mil plastic sheeting taped securely in place.
 - 6. If required by the scope of work, remove all carpeting from the work site. Lightly mist with water prior to removal to prevent lead dust exposure. Carpeting shall be professionally cleaned or replaced, if required by scope of work.
 - 7. Cover and protect floors in the work site with 6 mil plastic sheeting, sealed with tape. Additional protection may be required to protect flooring materials from potential damages resulting from the mitigation/abatement processes. All additional protection shall be

provided as needed to ensure that all building surfaces will be adequately protected during the mitigation/abatement processes and be included in the base bid.

8. Establish a negative pressure system to prevent contaminated air from escaping from the work site to uncontaminated areas, and consisting of:
 - a. Negative air machines (NAMs) exhausted from the work site, and vented to the outside of the building whenever possible.
 - b. Provide sufficient number of NAMs to provide a negative pressure of 0.02" wc between the work area and adjacent spaces, and 4 air changes per hour. Assume NAMs operate at 80% of design capacity. At least one backup NAM shall be available per work site.
 - c. The negative air system shall remain in continuous operation until cleanup and clearance is achieved.
- C. Exterior Preparation
1. 6 mil plastic sheeting shall be placed over the ground, foundation, or other surfaces adjacent to or below the abatement area.
 2. Close or otherwise seal windows, grilles, intakes, or other nearby openings (above, below, or beside) that could be exposed to airborne dust from the work.
 3. Sheeting shall extend out from the foundation 3 feet per story to be abated, with a minimum of 5 feet and a maximum of 20 feet. This sheeting shall remain in place until completion of final cleaning.
 4. Sheeting shall be secured at the foundation and along all edges and seams.
 5. When liquid waste is produced by any abatement method used, the edges of the plastic sheeting shall be raised a sufficient distance to contain the liquid waste.

3.8 Lead Mitigation may be used as an interim method for repairs to lead-bearing surfaces to stabilize, secure, or cover them.

- A. Work area preparation shall comply with paragraph 3.7 A. of this section.
- B. All loose paint, coatings, or coverings that contain lead or are applied to a lead-bearing surface shall be moistened and carefully scraped from surfaces back to where materials are solidly adhered.
 1. Lead-based paint mitigation practices shall be compatible with, and shall produce surfaces that are in conformance with Section 09910 of these documents, "Surface Preparation for Renovation Painting."
 2. Where called out in the documents, scraped areas shall be smoothed out by feathering or by filling with a surfacing compound.
 3. Where called out in the documents, areas from which paint has been removed shall be coated with a primer, such as "KILZ" or similar or as specified in the installation specifications, which shall be compatible with the new paint, coating or surfacing material to be re-applied.
 4. Areas to be repainted, the new paint, coating, or covering shall be compatible with the existing paint and primer, or shall have a surfacing treatment, sizing, bonding agent, or primer recommended by the paint, coating, or covering manufacturer to assure a proper and lasting bond with the substrate surface.
- C. Any nearby surfaces that have accumulated dust shall be cleaned by damp mopping with a cleaning solution.

3.9 LEAD ABATEMENT

A. General.

1. Unless otherwise specified in the Documents, lead-bearing substances listed in the Documents shall be removed by methods that minimize the generation of dust or debris.
2. Lead-based paint abatement practices shall be compatible with, and shall produce surfaces that are in conformance with Section 09910 of these documents, "Surface Preparation for Renovation Painting."
3. Where existing lead-bearing substances may be disturbed by the installation of new work, they shall be removed sufficiently to prevent such disturbances.
4. Following any window dismantlement activity in the work area, the abatement contractor shall wet scrape the loose paint off the exposed window lintel and prepare, seal, prime and paint the lintel surface. If the lintel is to be replaced as required by the architect, the abatement contractor shall only remove all the loose paint and not repaint the lintel surface.
5. Where disturbances of lead-bearing substances produce dust, the dust must be assumed to contain lead until tested and proven otherwise. Dust suppression methods, such as misting with water and HEPA vacuums shall be used.
6. Movement of lead-bearing wastes through unsecured school areas:
 - a. Wastes shall be contained in 6 mil impermeable (i.e. poly) bags.
 - b. Architectural components and other debris shall be wrapped in 6 mil plastic sheeting and sealed with tape.
 - c. Load-out only during non-school hours.
 - d. Dust and debris shall not be tracked or spilled outside the work site. In the event of spillage or tracking, contractor shall HEPA vacuum visible debris and wet wipe all affected areas with a non-TSP lead-dissolving detergent solution.

B. Interior Abatement methods may include:

1. Removal and replacement of the component or surface.
2. Wet scraping of lead-bearing material.
3. Heat gun with operating temperatures not to exceed 700° F.
4. Nonflammable chemical strippers shall not contain methylene chloride. This method is generally used with unique, irreplaceable, architecturally, or historically significant components. Chemical strippers shall be compatible with new paints, coverings, or coatings to be installed.
5. Sander, needle gun, chipper, scarifier, or other mechanical paint removal system. All such power tools shall be equipped with a HEPA vacuum collection system.
6. Enclosure with a durable material or coating that does not readily tear or peel, such as but not limited to, gypsum board; fiberglass mats; canvas-backed vinyl wall coverings; high pressure, laminated plastic sheet, such as Formica®, tile, vinyl flooring, paneling, plastic, metal, or wood. Enclosures shall only be used when specified in the Documents.

C. Exterior abatement methods may include:

1. All methods listed under Interior Abatement
2. Vacuum-blasting
3. Contained hydro-blasting or sandblasting
4. When vacuum-blasting or contained hydro-blasting is used, window interiors shall be sealed with 6 mil plastic sheeting and secured with waterproof tape. All seals shall be checked every two (2) hours to assure integrity. Leaks shall be repaired immediately.

5. Window replacement:

- a. The room interior shall be sealed off and protected from dust entry. If windows are removed from the inside, the room must be fully protected in accordance with 3.7 B. "Interior Preparation." and 3.7 C. "Exterior Preparation." When windows are removed from the outside, protection must be in accordance with 3.7 C., Exterior Preparation, including at least a seal over the wall immediately inside the window work area. In either case, the Abatement Contractor is responsible for preventing lead dust contamination of interior spaces.
- b. Damaged lead-based paint must be removed from the wood window frame parts that will remain, both on the inside and on the outside. MEC will direct the AC whether to abate or mitigate undamaged lead-based paint from wood window frames or frame parts on a case by case basis.
- c. Metal window replacements: The contractor is cautioned that high concentrations of lead dust and asbestos containing caulk have been found behind the window frame caps installed over the original lead-based painted frames during previous window replacements. Although a lead license is not required for non-LBP metal window removal, contractor must assume that he or she may encounter concentrated lead dust. When removing these caps, the room interior shall be protected in accordance with 3.7 B. Interior Preparation.

D. Soil Removal or Remediation:

1. Identify and eliminate the source of lead contamination if possible, to prevent re-contamination of remediated soil.
2. Dust generation shall be held to a minimum and dust suppression methods shall be performed, such as misting with water during handling.
3. Monitoring of airborne dust shall be performed by the MEC and shall not exceed acceptable levels.
4. Soil that is stockpiled prior to disposal shall be:
 - a. placed on a layer of impermeable plastic;
 - b. kept moist to avoid dust generation; and
 - c. covered with impermeable plastic which is secured to the ground.
5. Soil shall be subjected to a TCLP test to determine waste classification.
6. Contaminated soil shall be transported to disposal facility in sealed containers or covered vehicles. Care shall be taken to prevent tracking of contaminated soil off-site by vehicular or foot traffic.

E. Demolition. Structural demolition of buildings does not require removal of lead-bearing substances or lead-licensed contractors or workers. However, the following minimum requirements must be observed to prevent spread of lead contamination:

1. Close windows and seal doors of adjacent or nearby structures. Cover air intakes or other openings on facing walls or roof areas where dust could enter.
2. Mist the demolition activities with water to suppress dust release.
3. Do not spread debris outside the immediate demolition area.
4. Do not allow foot or other traffic through the demolition area that may spread lead-bearing dust to other building areas.
5. Pulverized painted components may generate lead dust that may require TCLP testing and waste characterization prior to disposal.

3.10 CLEANING AND DECONTAMINATION

- A. Interior Cleaning includes any furniture, cabinets, or other item that was located in the work area during the lead-based paint mitigation/abatement activities.
 - 1. Properly containerize and remove all lead wastes from the work site.
 - 2. HEPA vacuum all surfaces including woodwork, walls, windows, window wells, and floors.
 - 3. Wet clean all surfaces with a cleaning solution.
 - 4. Allow all surfaces to dry and HEPA vacuum any remaining visible residue.
- B. Exterior Cleaning.
 - 1. Recover all visible debris from exterior areas.
 - 2. HEPA vacuum surfaces that have been abated, paying particular attention to horizontal surfaces, such as window sills, wells, mullions, ledges, etc., both in the abated area and on nearby windows and surfaces.

3.11 FINAL CLEARANCE

- A. A lead abatement work area shall be complete if lead dust levels on horizontal interior surfaces are below 40 micrograms per square foot ($\mu\text{g}/\text{sf}$) on floors or 200 micrograms per square foot ($\mu\text{g}/\text{sf}$) on other surfaces. At least 3 wipe samples per contained work area shall be collected from floors, window sills, countertops, tops of cabinets, or other representative surfaces.
- B. The contractor shall restore the work area to usable condition including reconnection of electrical, water and HVAC services, removal of barriers and contractor equipment, waste removal and disposal and returning furniture removed under Section 3.7 of this specification.

3.12 WASTE DISPOSAL

- A. All plaster, paint chips, lead dust, cleaning supplies, HEPA filters, vacuum contents and filters, disposable suits, and other concentrated lead-bearing waste shall be packed in at least two 6 mil plastic bags.
 - 1. Dispose of concentrated lead wastes separately from architectural components.
 - 2. Subject concentrated wastes to TCLP test to determine waste classification.
 - 3. Prepare a Waste Shipment Record, to be signed by the generator, shipper, and disposal site; to be returned to the generator within 45 days. IEPA and USEPA Generator I.D. numbers will be provided by CSA Environmental Program staff.
- B. Architectural components, other items to which lead-based paint remains adhered, and cleaned plastic sheeting may be disposed of as common construction and demolition debris. Components shall be wrapped in 6 mil plastic sheeting and sealed with tape. Components shall be transported after school hours if carried through the building.
- C. All lead-bearing wastes shall be stored in covered, locked containers until transported off-site.
- D. Remove lead waste from the work site in accordance with RCRA and special waste disposal requirements.

- E. Transport all non-hazardous wastes in covered vehicles to an IEPA-approved landfill located within the State of Illinois.
- F. Transport all hazardous wastes in covered vehicles to a hazardous waste landfill permitted to accept lead wastes.
- G. Wastes from the site shall not be mixed with wastes from other sites.

ATTACHMENT

Appendix A Environmental Scope form CPS-E30.1

END OF SECTION

SECTION 02550

PERMEABLE PAVERS

PART 1 – MATERIALS

1.1 SUMMARY

- A. This section includes all ungrouted and mortarless exterior permeable unit paving for the extent of unit paving indicated on the drawings.

1.2 RELATED DOCUMENTS

- A. Drawings
- B. Book 1: Project Information, Instructions to Bidders, and Execution Documents
- C. Book 2: Standard Terms and Conditions for Construction Contracts
- D. Book 2a: Standard Terms and Conditions Procedures Manual

1.3 REFERENCES

- A. The American Society of Testing and Materials (ASTM):
 - 1. ASTM D698 - Tests for Moisture-Density Relationship of Soils and Soil-Aggregate Mixtures, Using 5 Lb. Rammer and 12 in. Drop.
- B. Illinois Department of Transportation:
 - 1. Standard Specifications for Road and Bridge Construction, January 2007, including all addenda.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract.
- B. Product data for the following products:
 - 1. Concrete unit pavers
 - 2. Joint and Bedding Layer
- C. Samples for initial selection purposes in form of actual units or sections of units showing full range of colors, textures, and patterns available for each type of unit paver indicated. Include similar samples of material for joints and accessories involving color selection.
- D. Qualification data for firms and persons specified in "Quality Assurance" Article 1.05 to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.
- E. Shop Drawings: showing detailed paving patterns and proposed cuts within concrete banding modules. Concrete banding shall be designed so that minimum cuts are required for the unit pavers.
- F. LEED
 - 1. LEED Credit MR 4.1 and Credit MR 4.2: Submit product data for products having recycled content, documentation indicating percentages by weight of post-consumer and pre-consumer recycled content.
 - a. Include statement indicating costs for each product having recycled content.

2. LEED Credit MR 5.1 and Credit MR 5.2: Submit product data for products that have extracted, harvested, or recovered, as well as manufactured within 500 miles of the Project site.
 - a. Include a statement indicating the percentage by weight which is extracted, harvested, or recovered within 500 miles of the Project site.
3. LEED Credit SS Credit 7.1: Product Data stating the solar reflectance index (SRI) is 29 or greater.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has successfully completed permeable unit paver installations similar in material, design and extent to that indicated for Project.
- B. Single-Source Responsibility: Obtain each color, type and variety of unit pavers, from a single source with resources to provide products and materials of consistent quality in appearance and physical properties without delaying progress of the work.
- C. Field-Constructed Mock-Up: Prior to installation of unit pavers, erect mock-ups for each form and pattern of unit pavers required to verify selections made under sample submittals. Build mock-ups to comply with the following requirements, using materials and same base construction including special features for expansion joints and contiguous work as indicated for final unit of work.
 1. Locate mock-ups on site in location and size indicated or, if not indicated, as directed by Owner's Representative and/or Architect/Engineer.
 2. Notify Owner's Representative and Architect/Engineer one week in advance of the dates and times when mock-ups will be erected.
 3. Demonstrate quality of workmanship that will be produced in final unit of work.
 4. Retain and maintain mock-ups during construction in undisturbed condition as a standard for judging completed unit of work. Accepted mock-ups in undisturbed condition at time of Substantial Completion may become part of completed unit of work.
 5. Paving is to show the proposed color, crevice fill material, surface finish and workmanship. Consult Architect for paver color.
 6. Panel size shall be a minimum of 10' -0" wide x 10' -0" long in the presence of the Architect/Engineer prior to the installation of these materials on the site.
 7. Do not start paving site work until the Architect has given written approval of all components of the sample panel.
 8. This sample panel will be used as a standard of comparison for all site concrete constructed of same materials.
- D. Visual Inspection
 1. All units shall be sound and free of defects that would interfere with proper placing of the unit or impair the strength or permanence of the construction. Minor cracks incidental to the usual methods of manufacture, or minor chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Protect unit pavers and aggregate during storage and construction against wetting by rain, snow, or ground water and against soil or contamination from earth and other materials.

1.7 PROJECT CONDITIONS

- A. Cold Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.
- B. Weather Limitations: Protect unit paver work against freezing when atmospheric temperature is 40 deg F (4 deg C) and falling. Heat materials and provide temporary protection of completed portions of unit paver work. Comply with International Masonry All-Weather Council's "Guide Specification for Cold-Weather Masonry Construction."

1.8 LEED REQUIREMENTS:

- 1. Maximize the use of recycled concrete aggregate for aggregate in the design mixes.
- 2. Obtain recycled concrete aggregate within 500 miles of the project.
- 3. Obtain non-recycled concrete aggregate within 500 miles of the project.
- 4. Obtain ready-mix concrete within 500 miles of the project.

PART 2 - PRODUCTS

2.1 PERMEABLE PAVING UNITS

- A. All permeable pavers shall comply with the quality specifications for solid concrete interlocking paving units as set out in ASTM Specifications C 936-01. Shall be in accordance with Section 02318.
- B. Manufacturer
 - 1. Unilock Chicago (or approved equal)
301 Sullivan Rd.
Aurora, IL 60505
Contact: Brad Swanson
- C. Permeable Paver Type 1: Unilock Eco-Optiloc – Parking Lot
 - 1. Color: Natural (SRI >29).
 - 2. Finish: Standard
 - 3. Chamfer: 3 mm bevel
 - 4. Size: Manufacture the sizes indicated with a maximum tolerance of plus or minus 1/16 in all directions.
 - a. L-shapeNote: Imperial dimensions are nominal equivalents to the metric dimensions.
- D. Physical Requirements
 - 1. Compressive Strength

- a. At the time of delivery to the work site, the average compressive strength shall not be less than 8,000 psi, with no individual strength less than 7,200 psi as per ASTM Specifications C 936-01.
 - b. Testing procedures shall be in accordance with ASTM Specifications C 140.
2. Absorption
- a. The average absorption shall not be greater than five percent (5%) with no individual unit absorption greater than seven percent (7%) as required by ASTM Specification C 936-01.
3. Resistance to Freezing and Thawing
- a. The manufacturer shall satisfy the purchaser either by proven field performance of laboratory freezing and thawing test that the paving units have adequate resistance to freezing and thawing. If a laboratory test is used, when testing in accordance with ASTM Specification C 67-02, Section 8, specimens shall have no breakage and not greater than 1 % loss in dry weight of any individual unit when subjected to 50 cycles of freezing and thawing.

2.2 AGGREGATE MATERIALS

- A. Aggregates shall conform to ASTM Specifications C 33 for normal weight concrete aggregate (no expanded shale or lightweight aggregates) except that grading requirements shall not necessarily apply. Shall be in accordance with Section 02318.
- B. Joint Material:
 - 1. Color to be selected by architect to match paver selected.
 - 2. The grading requirements for the material shall be in compliance with the grain size distribution envelope presented in the following chart.

Eco-Optiloc Vehicular Use Paver (CA-16)

Sieve Size	Percentages Passing Weight Specified
1/2"	100
3/8"	94-100
No. 4	15-45
No. 16	0-4

- C. Bedding Layer:
 - 1. The Bedding Layer shall consist of crushed stone (CA-16) meeting the grading requirements specified in IDOT Section 1004 and meeting requirements of Section 02318.
 - 2. Color to be selected by architect to match paver selected.
 - 3. The grading requirements for the material shall be in compliance with the grain size distribution envelope presented in the following chart.

Sieve Size	Percentages Passing Weight Specified
1/2"	100
3/8"	94-100
No. 4	15-45
No. 16	0-4

D. Drainage Course:

1. The Drainage Course shall consist of crushed stone (CA-7) meeting the grading requirements specified in IDOT Section 1004 and meeting the requirements of Section 02318.
2. The grading requirements for the material shall be in compliance with the grain size distribution envelope presented in the following chart.

Sieve Size	Percentages Passing Weight Specified
1-1/2"	100
1"	90-100
1/2"	30-60
No. 4	0 - 10

3. The percentage of Voids in Dry Bulk shall be 38.0.

E. Base Course

1. The Base Course shall consist of crushed stone (CA-1) meeting the grading requirements specified in IDOT Section 1004 and meeting the requirements of Section 02318.
2. The grading requirements for the material shall be in compliance with the grain size distribution envelope presented in the following chart:

Sieve Size	Percentages Passing Weight Specified
3"	100
2 - 1/2"	90-100
2"	45-75
1 - 1/2"	0-30
1"	0-6

3. The percentage of Voids in Dry Bulk shall be 38.0.

PART 3 - EXECUTION

3.1 SUBGRADE

- A. Under this section the Contractor shall perform the final shaping and compaction of earth to provide for the construction of the permeable pavement structure, to conform to the lines, grades and cross-sections shown on the plans.
- B. Site grades can be elevated to the design sub grade elevation using clean native earth fill (free of deleterious material). This fill should be placed in lifts not exceeding 6 inches and compacted to a minimum of 90 percent Standard Proctor Density per ASTM D 698. The final sub grade profile should be (1) uniformly compacted to a minimum of 90 percent Standard Proctor Density and (2) proof-rolled using a heavy rubber tired vehicle (such as a loaded tandem) to delineate soft (wet and "spongy") areas. These areas should be repaired by removing the unstable soil and replacing with clean dry compacted earth fill.

3.2 PLACEMENT OF BASE COURSE

- A. The base course of CA-1 shall consist of a thickness as indicated in drawings and shall be compacted to a minimum of 95 percent Standard Proctor Density.

3.3 PLACEMENT OF DRAINAGE COURSE

- A. The base course of CA-7 shall consist of a thickness as indicated in drawings and shall be compacted to a minimum of 95 percent Standard Proctor Density.

3.4 BEDDING LAYER

A. Spreading

- 1. The bedding aggregate shall be spread loosely in a uniform layer to provide a finished layer of 1.5 inches after compaction of the paving units.

B. Screeding

- 1. The spread aggregate shall be carefully maintained in a loose condition and protected against precompaction by traffic or rain both prior to and following screeding. Under no circumstances shall the bedding aggregates be screeded in advance of the laying face to an extent to which paving will not be completed on that day. Any screeded bedding aggregate which is precompacted prior to laying of paving units shall be brought back to profile in a loose condition. Neither pedestrian nor vehicular traffic shall be permitted on the screeded bedding aggregates.
- 2. The contractor shall screed the bedding aggregates using either an approved mechanical spreader (e.g. an asphalt paver) or by the use of screed guides and boards.

3.5 INSTALLATION OF PERMEABLE PAVERS

A. General

- 1. Pavers with excessive chips, cracks, voids, discoloration's or other defects shall not be installed. Permeable pavers should be produced with spacer lugs which maintain consistent joint spacing.

B. Patterning

- 1. Vehicular pavers are to be laid in a basket weave patterning.

C. Edge Restraints

- 1. Provide edge restraints as indicated.

D. Initial Compaction of permeable pavers

- 1. After placement, the pavement surface shall be compacted to achieve consolidation of the bedding aggregates and brought to design levels and profiles by not less than three passes of a suitable plate compactor.
- 2. Compaction shall be accomplished by the use of a plate compactor capable of a minimum of a 4500-pound compaction force.
- 3. Initial compaction should proceed as closely as possible following installation of the paving units and prior to acceptance of any traffic or application of additional Joint and bedding aggregate.
- 4. Compaction should not be attempted within 3 feet of an unrestrained laying edge.

E. Inspection of Paver Surface

1. Any units, which are structurally damaged during compaction, shall be immediately removed and replaced.

F. Infilling of Joints and Surface Voids with Additional Bedding Aggregates

1. The joint and bedding aggregates shall be spread over the pavement after initial compaction has been completed. This aggregate material shall be spread as soon as is practical after initial compaction and prior to the termination of work on that day.
2. The joint and bedding aggregates shall be broomed or shoveled to fill the surface voids. Excess aggregate material shall then be removed from the pavement surface and the pavers shall be compacted again to settle the aggregates. A second application of the aggregates may be required to completely fill the surface voids.

G. Final Compaction of permeable pavers

1. After the joint and bedding aggregates has been installed, the pavement surface shall be swept clean and final compaction shall be accomplished by not less than two passes of the plate compactor.
2. Final compaction shall proceed as closely as possible following installation of the joint and bedding aggregates and prior to the acceptance of any traffic.
3. Inspection by the owner or consultant shall determine whether and additional aggregate application is required.

3.6 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to Installer, which ensures unit paver work being without damage or deterioration at time of Substantial Completion.

3.7 CLEAN-UP

1. Sweep clean all paved areas of excess aggregate and dirt.
2. Pick up and removed from the site all surplus materials, equipment and debris resulting from this section of the work.
3. Off-site disposal shall be in accordance with Section 02316.

END OF SECTION

DIMENSION NOTES:

1. ALL DIMENSIONS ARE FROM FACE OF CURB, FACE OF BUILDING, EDGE OF PAVEMENT, PROPERTY LINE, OR POINT OF TANGENCY UNLESS OTHERWISE NOTED.

GRADING NOTES:

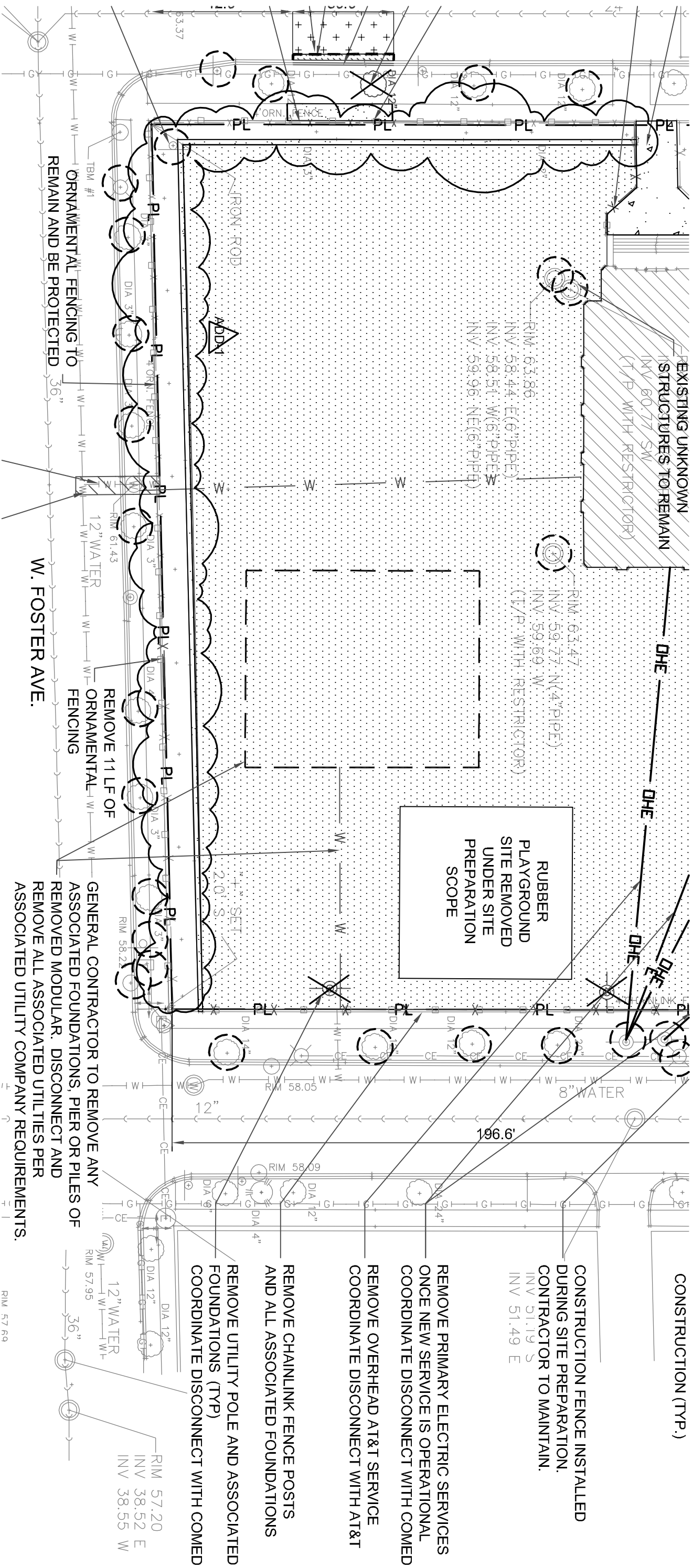
1. CONTRACTOR TO ADJUST ALL RIMS OF ALL EXISTING STRUCTURES TO MEET NEW GRADES.
2. MAIN LINE SIDEWALK RUNNING-SLOPES, FOR CITY OF CHICAGO RIGHT-OF-WAY, SHALL NOT EXCEED 1:24 OR THE GENERAL GRADE ESTABLISHED BY THE ADJACENT STREET, WHICHEVER IS HIGHER.
3. 63.72 CSD = 0'-0" ARCHITECTURAL
4. ALL EARTHWORK TO BE DONE IN ACCORDANCE WITH SPECIFICATION SECTION 02316 AND 02318.



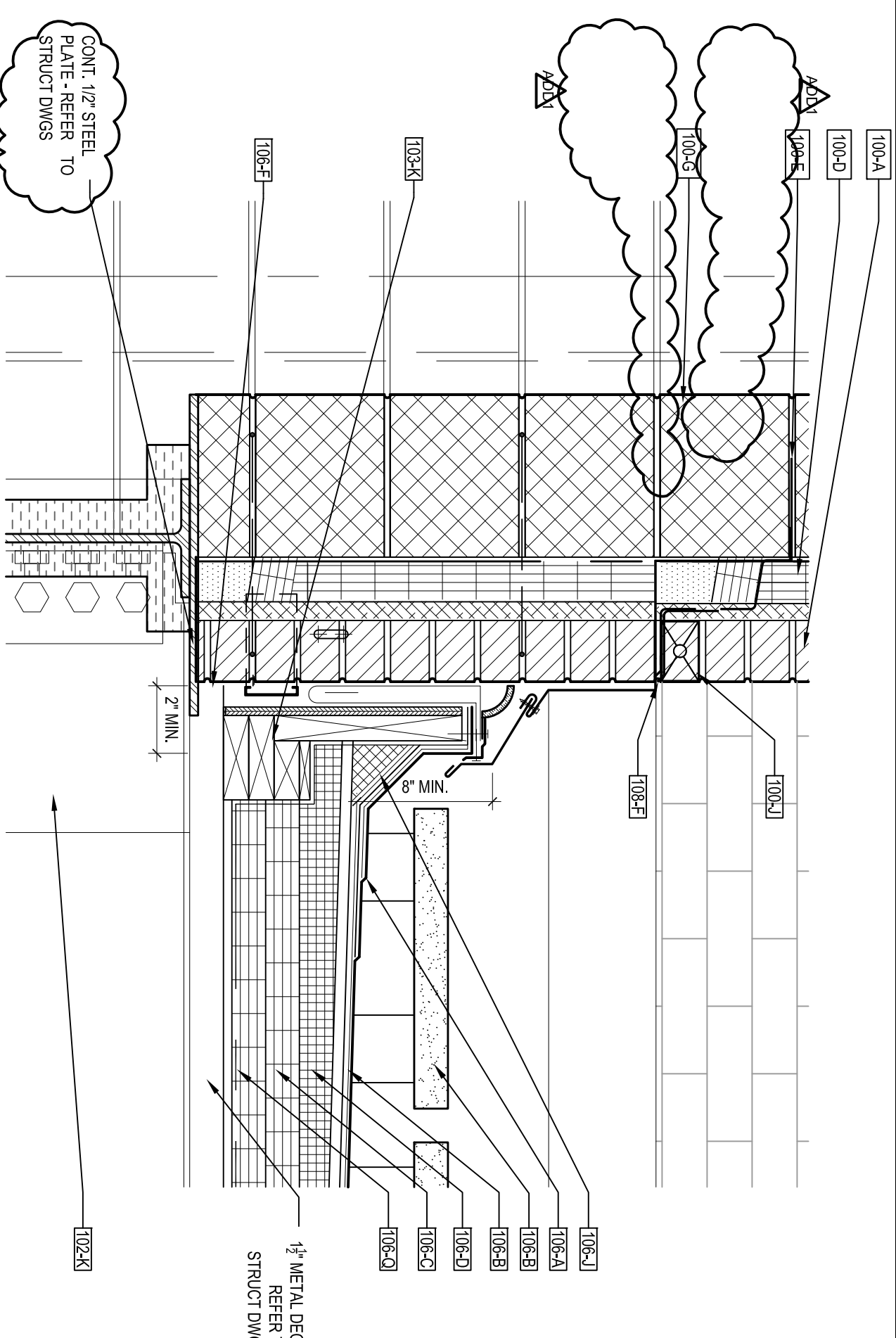
UTILITY NOTES:

1. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES SHALL BE OBTAINED FROM ALL UTILITY COMPANIES, INVESTIGATED AND VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING WORK IN THE CONSTRUCTION AREA. EXCAVATION IN THE VICINITY OF EXISTING STRUCTURES SHALL BE PERFORMED BY HAND. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING FACILITIES, MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
2. THE CONTRACTOR IS TO UNCOVER ALL LINES BEING TIED INTO AND VERIFY GRADES BEFORE ANY CONSTRUCTION.
3. CALL DIGGER (312)744-7000 PRIOR TO DIGGING FOR ANY UTILITY CONSTRUCTION.
4. WATER MAIN SHALL BE DUCTILE IRON PIPE, CLASS 52, CEMENT LINED.
5. ESWCP SEWER SHALL CONFORM TO ASTM SPECIFICATIONS FOR MATERIALS AND JOINTS (ASTM C-700/C-425).
6. A WATER MAIN SHALL BE SEPARATED FROM A SEWER SO THAT ITS INVERT IS A MINIMUM OF 18 INCHES ABOVE THE CROWN OF THE SEWER. WHENEVER WATER MAINS CROSS STORM SEWERS, SANITARY SEWERS OR SEWER SERVICE CONNECTIONS, THIS VERTICAL SEPARATION SHALL BE MAINTAINED. A LENGTH OF WATER MAIN PIPE SHALL BE CENTERED OVER THE SEWER TO BE CROSSED WITH JOINTS EQUIDISTANT FROM THE SEWER OR DRAIN. A TEN FOOT HORIZONTAL SEPARATION BETWEEN ALL WATER AND SEWER PIPES SHALL BE MAINTAINED.
7. WHEN IT IS IMPOSSIBLE TO OBTAIN THE PROPER VERTICAL SEPARATION AS DESCRIBED ABOVE, OR THE WATER MAIN PASSES UNDER A SEWER OR DRAIN, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT CAST OR DUCTILE IRON PIPE EQUIVALENT TO WATER MAIN STANDARDS FOR CONSTRUCTION. CONSTRUCTION SHALL EXTEND ON EACH SIDE OF THE CROSSING UNTIL THE PERPENDICULAR DISTANCE FROM THE WATER MAIN TO THE SEWER OR DRAIN LINE IS AT LEAST TEN FEET.
8. WHERE A WATER MAIN CROSSES UNDER A SEWER, SUPPORT THE SEWER OR DRAIN LINES TO PREVENT SETTLING AND BREAKING THE WATER MAIN.

<p>SMNG-A Schroeder Murchie Niamiec Gazda-Auskalis Architects Ltd. PBC Elementary School Design Architect</p> <p>UrbanWorks ARCHITECTURE INTERIORS PLANNING ARCHITECT OF RECORD 213 W Institute Place Suite 710 Chicago, IL 60610 P: 312 202 1200 F: 312 202 1202</p>	<p>Terra Engineering 225 N Oak Street, 18th Floor, Chicago, IL 60604 ARCHITECTURE INTERIORS PLANNING</p> <p>Matrix Engineering Corp 331 N. Dearborn St., 18th Floor, Chicago, IL 60604 STRUCTURE ENGINEER</p> <p>Dynscept, Inc 225 E. Dearborn St., 2nd Floor, Chicago, IL 60601 1800 N. Dearborn St., 18th Floor, Chicago, IL 60604 STRUCTURE ENGINEER</p> <p>Henneman Engineering Inc 205 E. North Dearborn St., 18th Floor, Chicago, IL 60606 ELECTRICAL AND MECHANICAL ENGINEER</p> <p>Shiner & Associates 225 N. Dearborn Street, 18th Floor, Chicago, IL 60606 ARCHITECTURE INTERIORS PLANNING</p> <p>Environ Consulting Services 2140 S. Dearborn St., Chicago, IL 60605 8333 BARKER DRIVE, CHICAGO, IL 60619</p>	<p>GARYV ELEMENTARY SCHOOL ADDITION 5225 W GALE PARK AVE CHICAGO, IL 60630 CHICAGO PUBLIC SCHOOLS 8711 S. ROOSEVELT BLVD. CHICAGO, IL 60620</p> <p>PBC Contract No: 0011 PBC Project No: 0030 SMNG-A Project No: 0002 / U/W Project No: P003</p>	<table border="1"> <thead> <tr> <th colspan="3">Issuance</th> </tr> <tr> <th>Mark</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td></td> <td>ADDENDUM #1</td> <td>04.30.10</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Issuance			Mark	Description	Date		ADDENDUM #1	04.30.10										<p>SCALE: Reference Sheet C0.0</p>	<p>Title GENERAL NOTES AND LEGEND</p> <p>Sheet CSK-1</p>
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<p>SMNG-A</p> <p>Schwab Muzina White Good-Kuhntz PBC Elementary School Design Architect</p> <p>UrbanWorks ARCHITECT OF RECORD 213 W. Madison Plaza Suite 710 Chicago, IL 60604 P: 312.202.2000 F: 312.202.2002</p>	<p>Terra Engineering LANDSCAPE & CIVIL ENGINEER 225 W. Ohio Street 4th Floor Chicago, IL 60604</p> <p>Matrix Engineering Corp STRUCTURAL ENGINEER 33 W. Jackson Blvd 4th Floor Chicago, IL 60604</p>	<p>Dynacept, Inc MECHANICAL, PLUMBING, FIRE PROTECTION 2250 E. Pioneer Av. Suite 218 Oak Park, IL 60118</p> <p>Henneman Engineering Inc ELECTRICAL, IT AND LEED ENGINEER 200 S. Wacker Drive Suite 850 Chicago, IL 60606</p> <p>Shiner + Associates ACQUISITION CONSULTANT 223 W. Washington St. No. 1625 Chicago, IL 60606</p> <p>Erwin Consulting Services ESTIMATING CONSULTANT 1 Oriani Drive Schaumburg, IL 60193</p>						
<p>0 F C H I C A G O</p> <p>BUILDING SCHOOLS</p> <p>ACROSS CHICAGO</p> <p>CHICAGO PUBLIC SCHOOLS</p> <p>CPS</p>								
<p>GARVY</p> <p>ELEMENTARY SCHOOL ADDITION</p> <p>6225 N OAK PARK AVE CHICAGO, IL 60656</p> <p>CHICAGO PUBLIC SCHOOLS</p> <p>DIR: OF CHICAGO ARCHITECTURAL DIVISION</p> <p>PBC Contract No.: 0511 PBC Project No.: 05300 SMNG-A Project No.: 0902 / UW Project No.: P0903</p>								
<p>Issuance</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Mark</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">▲</td> <td>ADDENDUM #1</td> <td>04.30.10</td> </tr> </tbody> </table>	Mark	Description	Date	▲	ADDENDUM #1	04.30.10		<p>Title</p> <p>REVISED</p> <p>LANDSCAPE DEMO</p> <p>SCALE: 1"=30'</p> <p>Reference Sheet</p>
Mark	Description	Date						
▲	ADDENDUM #1	04.30.10						
C1.0	Sheet	CSK-2						



CONT. 1/2" STEEL
PLATE - REFER TO
STRUCT DWGS

ADD1

102-K

SMNG-A
Sproeder Maricle Nienke Gatz-Ausadits
Architects Ltd.
PBC Elementary School Design Number
UrbanWorks
ARCHITECTURAL INTERIORS PLANNING
ARCHITECT OF RECORD
215 W. Madison Plaza Suite 710
Chicago, IL 60601
P-312.202.1200
F-312.202.1202

Term Engineering
225 W. Superior Street, Suite 1000 Chicago, IL 60604
212 W. Jackson Street, Suite 200 Chicago, IL 60604
Mark Engineering Corp
225 W. Superior Street, Suite 1000 Chicago, IL 60604
212 W. Jackson Street, Suite 200 Chicago, IL 60604
Dispersed Inc
225 W. Superior Street, Suite 1000 Chicago, IL 60604
212 W. Jackson Street, Suite 200 Chicago, IL 60604
Heavenly Engineering Inc
225 W. Superior Street, Suite 1000 Chicago, IL 60604
212 W. Jackson Street, Suite 200 Chicago, IL 60604
Shimmer & Shine Inc
225 W. Superior Street, Suite 1000 Chicago, IL 60604
212 W. Jackson Street, Suite 200 Chicago, IL 60604
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225 W. Superior Street, Suite 1000 Chicago, IL 60604
212 W. Jackson Street, Suite 200 Chicago, IL 60604



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ELEMENTARY SCHOOL ADDITION
5225 N OAK PARK AVE CHICAGO, IL 60656
CHICAGO PUBLIC SCHOOLS
CITY OF CHICAGO, MAYOR RICHARD M. DALEY
PBC Contract No.: 0811
PBC Project No.: 05380
SMNG-A Project No.: 0902 / UW Project No.: P0903

Mark	Description	Date
ADD1	ADDENDUM #1	05.03.10

Reference Sheet
11/A6.4

Title
**ENLARGED DETAIL
AT ENTRY CANOPY**
Sheet
ASK-2

OPENING SCHEDULE

FLOOR	OPNG NO	OPENING						HDW SET	FRAME					GLAZING	LABEL	STC RATING	KEY NOTE
		TYPE	SIZE				MAT		TYPE	MAT	DETAILS						
			WIDTH	HT	THK	TRANS					HEAD	JAMB	SILL				
FIRST FLOOR	D101A	C	3'-0"	7'-2"	1 3/4"	Y	AL	49	AE	AL	-	-	N/A	G2	NR	-	N6, N17, N18, N20
	D101B	C	3'-0"	7'-2"	1 3/4"	Y	AL	48	AE	AL	-	-	N/A	G2	NR	-	N17, N18, N20
	D101C	C	3'-0"	7'-2"	1 3/4"	Y	AL	45	WW	AL	-	-	10/A12.0 SIM.	G5-L	NR	-	N1, N3, N5, N6, N17, N18, N19, N20
	D101D	C	3'-0"	7'-2"	1 3/4"	Y	AL	46	WW	AL	-	-	10/A12.0 SIM.	G5-L	NR	-	N1, N3, N5, N17, N18, N19, N20
	L1004	LITE	2'-8"	5'-5"	8"	NA	HM	NA	3	HM	-	-	8/A12.0	G3	C	-	
	D105	A	3'-0"	7'-2"	1 3/4"	N	WD	2	2	HM	1/A12.0	1/A12.0	N/A	NA	B	-	
	D106A	A1	2@3'-0"	7'-2"	1 3/4"	N	HM	50	5	HM	1/A12.0	1/A12.0	N/A	NA	A	-	N7, N17
	D106B	A1	2@3'-0"	7'-2"	1 3/4"	N	HM	50	5	HM	1/A12.0	1/A12.0	N/A	NA	A	-	N7, N17
	D106C	A	3'-0"	7'-2"	1 3/4"	N	HM	9	1	HM	1/A12.0	1/A12.0	N/A	NA	A	-	
	D107A	B1	2@3'-0"	7'-2"	1 3/4"	N	HM	23	1	HM	1/A12.0	1/A12.0	N/A	G3	B	-	N7, N17, N18
	D107B	B1	2@3'-0"	7'-2"	1 3/4"	N	HM	23	1	HM	1/A12.0	1/A12.0	N/A	G3	B	-	N7, N17, N18, N20
	D108	A	3'-0"	7'-2"	1 3/4"	N	HM	3	1	HM	1/A12.0	1/A12.0	2/A13.0	NA	B	-	N9
	D109A	C	3'-0"	7'-2"	1 3/4"	Y	AL	49	AE	AL	-	-	N/A	G2	NR	-	N6, N17, N18, N20
	D109B	C	3'-0"	7'-2"	1 3/4"	Y	AL	48	AE	AL	-	-	N/A	G2	NR	-	N17, N18, N20
	D109C	C	3'-0"	7'-2"	1 3/4"	Y	AL	45	WW	AL	-	-	10/A12.0	G5-L	NR	-	N1, N3, N5, N6, N17, N18, N19, N20
	D109D	C	3'-0"	7'-2"	1 3/4"	Y	AL	46	WW	AL	-	-	10/A12.0	G5-L	NR	-	N1, N3, N5, N17, N18, N19, N20
	D110	A	3'-0"	7'-2"	1 3/4"	N	HM	7	1	HM	1/A12.0	1/A12.0	2/A13.0	NA	B	-	N18
	D111	A1	2@3'-0"	7'-2"	1 3/4"	N	HM	29	5	HM	-	-	-	NA	B	30	N4, N19
	D112	A1	2@3'-0"	7'-2"	1 3/4"	N	HM	36	1	HM	1/A12.0	1/A12.0	2/A13.0	NA	B	30	N4, N8, N9, N17
	D113	A	4'-0"	7'-2"	1 3/4"	N	HM	5	1	HM	-	-	-	NA	B	30	
	D114A	C	3'-0"	7'-2"	1 3/4"	Y	AL	48	AE	AL	-	-	N/A	G2	NR	-	N6, N17, N18, N20
	D114B	C	3'-0"	7'-2"	1 3/4"	Y	AL	49	AE	AL	-	-	N/A	G2	NR	-	N17, N18, N20
	D114C	C	3'-0"	7'-2"	1 3/4"	Y	AL	45	WW	AL	-	-	10/A12.0 SIM.	G5-L	NR	-	N1, N3, N5, N6, N17, N18, N19, N20
	D114D	C	3'-0"	7'-2"	1 3/4"	Y	AL	46	WW	AL	-	-	10/A12.0 SIM.	G5-L	NR	-	N1, N3, N5, N17, N18, N19, N20
	D116	A	3'-0"	7'-2"	1 3/4"	N	WD	1	2	HM	1,2/A12.0	1,2,4/A12.0	1/A13.0	G3	C	30	N4, N20
	D117	A	3'-0"	7'-2"	1 3/4"	N	WD	1	2	HM	1,2/A12.0	1,2,4/A12.0	1/A13.0	G3	C	30	N4, N20
	D118	A	3'-0"	7'-2"	1 3/4"	N	WD	1	2	HM	1,2/A12.0	1,2,4/A12.0	1/A13.0	G3	C	30	N4, N20
	D119	A	3'-0"	7'-2"	1 3/4"	N	WD	1	2	HM	1,2/A12.0	1,2,4/A12.0	1/A13.0	G3	C	30	N4, N20
	D120A	C	3'-0"	7'-2"	1 3/4"	Y	AL	48	AE	AL	-	-	N/A	G2	NR	-	N6, N17, N18, N20
	D120B	C	3'-0"	7'-2"	1 3/4"	Y	AL	48	AE	AL	-	-	N/A	G2	NR	-	N17, N18, N20
	D120C	C	3'-0"	7'-2"	1 3/4"	Y	AL	49	AE	AL	-	-	N/A	G2	NR	-	N17, N18, N20
	D120D	C	3'-0"	7'-2"	1 3/4"	Y	AL	45	WW	AL	-	-	10/A12.0 SIM.	G5-L	NR	-	N1, N3, N5, N6, N17, N18, N19, N20
	D120E	C	3'-0"	7'-2"	1 3/4"	Y	AL	46	WW	AL	-	-	10/A12.0 SIM.	G5-L	NR	-	N1, N3, N5, N17, N18, N19, N20
D120F	C	3'-0"	7'-2"	1 3/4"	Y	AL	47	WW	AL	-	-	10/A12.0 SIM.	G5-L	NR	-	N1, N3, N5, N17, N18, N19, N20	
D121	B1	2@3'-0"	7'-2"	1 3/4"	N	HM	23	1	HM	1/A12.0	1/A12.0	N/A	G3	B	-	N7, N17, N18, N20	
D122	A	3'-0"	7'-2"	1 3/4"	N	WD	1	2	HM	1,2/A12.0	1,2,4/A12.0	1/A13.0	G3	C	30	N4, N20	
D123	A	3'-0"	7'-2"	1 3/4"	N	WD	1	2	HM	1,2/A12.0	1,2,4/A12.0	1/A13.0	G3	C	30	N4, N20	
D124	A	3'-0"	7'-2"	1 3/4"	N	WD	1	2	HM	1,2/A12.0	1,2,4/A12.0	1/A13.0	G3	C	30	N4, N20	
D126	A	3'-0"	7'-2"	1 3/4"	N	HM	10	1	HM	1/A12.0	1/A12.0	12/A13.0	NA	C	-	N23	
D128	A	3'-0"	7'-2"	1 3/4"	N	HM	3	1	HM	1/A12.0	1/A12.0	2/A13.0	NA	C	-		
D129	A	3'-0"	7'-2"	1 3/4"	N	WD	9	2	AL	1,2/A12.0	1,2,4/A12.0	N/A	G3	C	-		
D130	A	3'-0"	7'-2"	1 3/4"	N	HM	3	1	HM	1/A12.0	1/A12.0	2/A13.0	NA	B	-	N8, N9	

ADD1

ADD1

ADD1

ADD1

SMNG-A
Schroeder Murchie Nientec Gazzda-Auskalns Architects Ltd.
PBC Elementary School Design Architect

UrbanWorks
ARCHITECTURE INTERIORS PLANNING
ARCHITECT OF RECORD
213 W Institute Place Suite 710
Chicago, IL 60610
P: 312 202 1200
F: 312 202 1202

Terra Engineering
225 W Oak Street 4th Floor Chicago, IL 60604
LANDSCAPE ARCHITECTURE

Matrix Engineering Corp
311 W Jackson Blvd 14th Floor Chicago, IL 60604
STRUCTURAL ENGINEER

Dynaspec Inc
205 E Devon Ave Suite 218 Oak Park, IL 60468
MECHANICAL, PLUMBING, FIRE PROTECTION

Henneman Engineering Inc
205 E Madison Ave Suite 100 Chicago, IL 60605
ELECTRICAL, FIRE AND LIFE SAFETY

Shiner + Associates
205 W Randolph St 4th Floor Chicago, IL 60606
ACQUISITION, CONTRACTING

Erwin Consulting Services
1000 North Dearborn Street, 6th Floor
CHICAGO, IL 60610
ESTIMATION CONSULTANT

GARVY ELEMENTARY SCHOOL ADDITION
5225 N OAK PARK AVE CHICAGO, IL 60630
CHICAGO PUBLIC SCHOOLS
4877 PULASKI AVENUE BLDG 3001

PBC Contract No.: 0511
PBC Project No.: 05300
SMNG-A Project No.: 0902 / UW Project No.: P0903

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Mark	Description	Date
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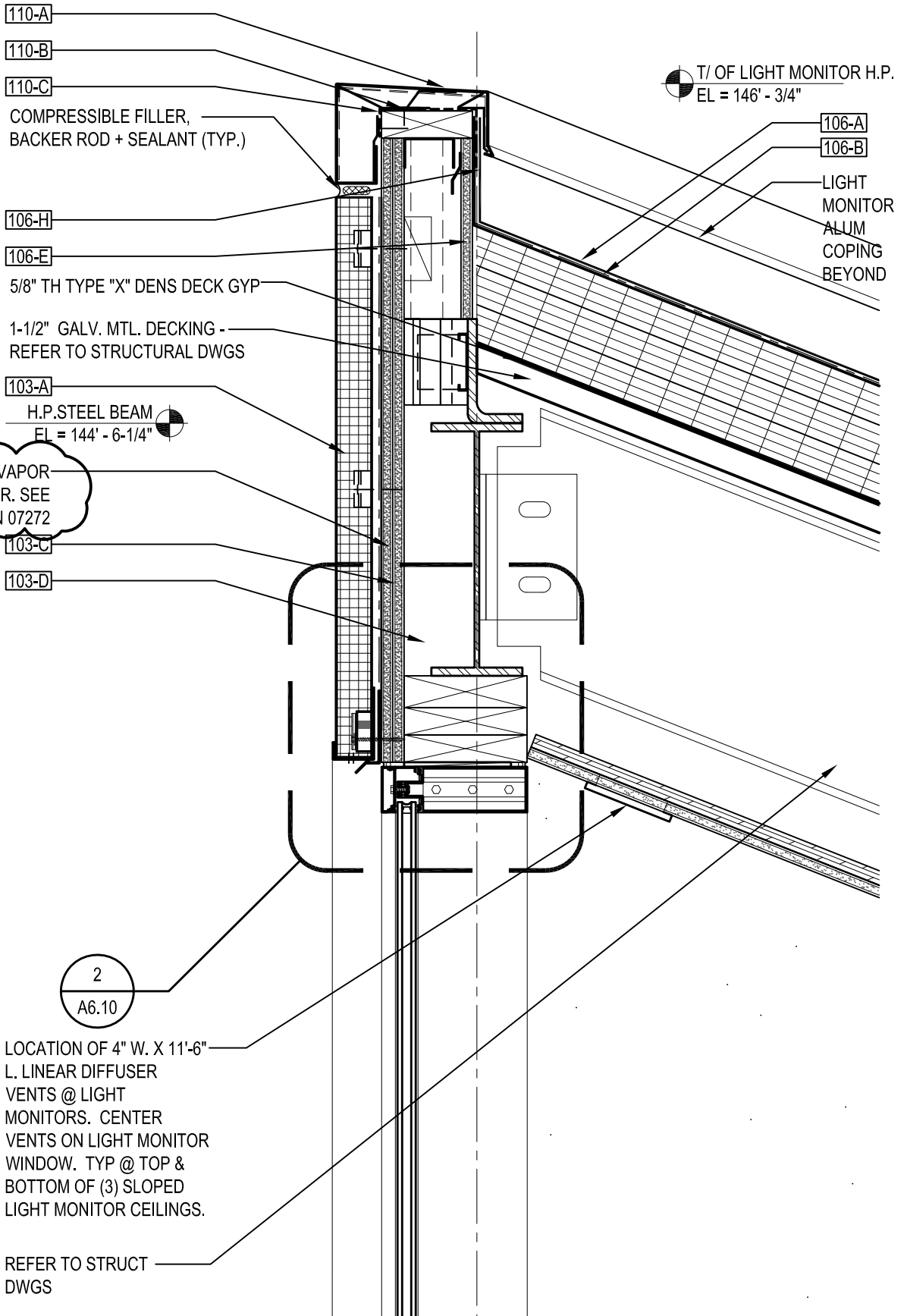
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Reference Sheet **A12.0**

Title **REVISED OPENING SCHEDULE**

Sheet **ASK-3A**

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SMNG-A
Schroeder Murchie Nieniec Gazda-Auskalis
Architects Ltd.
PBC Elementary School Design Architect

UrbanWorks
ARCHITECTURE INTERIORS PLANNING
ARCHITECT OF RECORD
213 W Institute Place Suite 710
Chicago, IL 60610
P: 312 202 1200
F: 312 202 1202

Terra Engineering
222 W Oak Street 4th Floor Chicago, IL 60604
LANDSCAPE ARCHITECTURE

Matrix Engineering Corp
31 W Jackson Blvd 10th Floor Chicago, IL 60604
STRUCTURAL ENGINEER

Dynascept Inc
205 E Devon Ave Suite 218 Oak Park, IL 60468
MECHANICAL PLUMBING FIRE PROTECTION

Henneman Engineering Inc
205 E Madison Ave Suite 100 Chicago, IL 60605
ELECTRICAL ENGINEER

Shiner + Associates
205 W Washington St. No. 1025 Chicago, IL 60606
ACoustical CONSULTANT

Erwin Consulting Services
1 Devon Drive Schaumburg, IL 60196
ESTIMATING CONSULTANT

GARY
ELEMENTARY SCHOOL ADDITION
5225 N OAK PARK AVE CHICAGO, IL 60630
CHICAGO PUBLIC SCHOOLS
487 W 39th St. CHICAGO, IL 60641

PBC Contract No.: 0511
PBC Project No.: 05300
SMNG-A Project No.: 0902 / UW Project No.: P0903

Issuance		
Mark	Description	Date
ADD	ADDENDUM #1	05.03.10

SCALE: 1 1/2" = 1'-0"

Reference
Sheet **1/A6.9**

Title
**PARTIAL LIGHT
MONITOR DETAIL**

Sheet
ASK-4

PROVIDE WOOD NAILERS FOR BACK NAILING MODIFIED BIT MEMBRANE PER SECTION 07550 OR MANUFACTURERS RECOMMENDATIONS, WHICHEVER IS MORE STRINGENT.

LIGHT MONITOR STRUCTURE SECURED TO CONCRETE CURB - REFER TO STRUCT DWGS

[106-A]

[106-B]

LIGHT MONITOR ALUM COPING BEYOND

[106-C]

5/8" TH TYPE "X" DENS DECK GYP

[102-B]

PRESERVATIVE TREATED WOOD BLOCKING

POLYURETHANE SPRAY FOAM INSULATION

(2) LAYER 5/8" TYPE "X" EXTERIOR GYPSUM BOARD w/ JOINTS TAPED AND SEALED PER MFR. RECOMMENDATION, DENS-GLAS GOLD OR APPROVED EQ.

T/ROOFING BEYOND @ CURB BETWEEN LIGHT MONITORS

2" RIGID POLYISOCYANURATE INSULATION

(4" MIN) TAPERED INSULATION TO PROVIDE MIN 1/2" PER FOOT ROOF SLOPE TOWARD ROOF DRAIN - REFER TO ROOF PLAN FOR DRAIN LOCATIONS

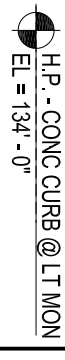
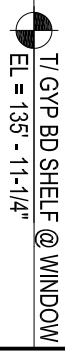
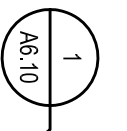
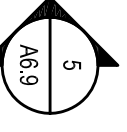
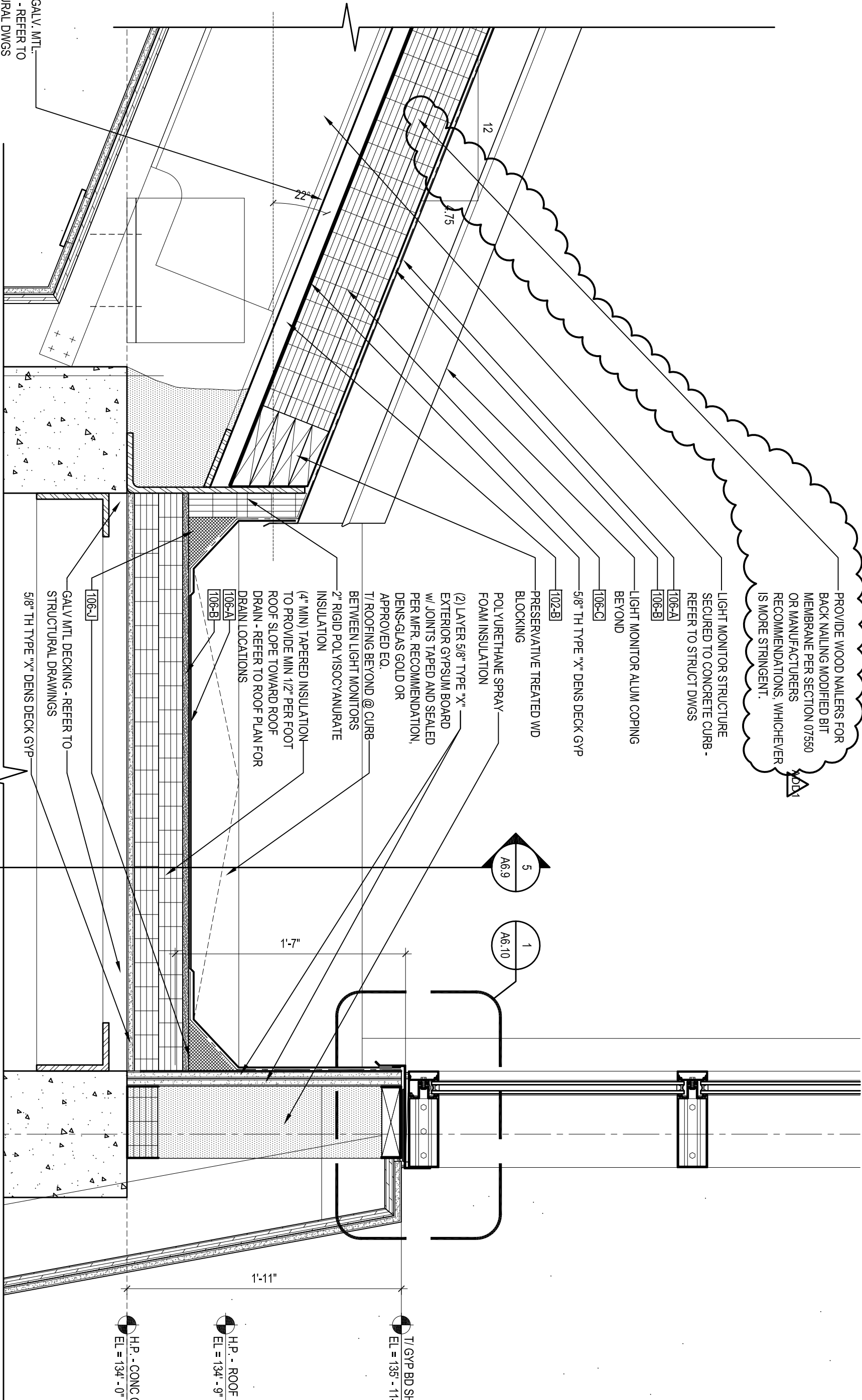
[106-A]

[106-B]

GALV MTL DECKING - REFER TO STRUCTURAL DRAWINGS

5/8" TH TYPE "X" DENS DECK GYP

B/1-1/2" GALV. MTL DECKING - REFER TO STRUCTURAL DWGS



SMNG-A
 Strateger Martche Nemer Gazer-Ausaltis
 Architects Ltd.
 213 W. Madison Street, Suite 710
 Chicago, IL 60601
 F: 312.202.1202

UrbanWorx
 220 E. Dearborn Ave. Suite 218
 Chicago, IL 60604
 F: 312.202.1202

HD SOEFT
 220 E. Dearborn Ave. Suite 218
 Chicago, IL 60604
 F: 312.202.1202

Gen Engineering
 220 E. Dearborn Ave. Suite 218
 Chicago, IL 60604
 F: 312.202.1202

Matrix Engineering Corp
 33 W. Jackson Blvd. 4th Floor
 Chicago, IL 60604
 F: 312.202.1202

Dynacrypt, Inc
 220 E. Dearborn Ave. Suite 218
 Chicago, IL 60604
 F: 312.202.1202

Henneman Engineering Inc
 200 S. Meier Drive
 Chicago, IL 60609
 F: 312.202.1202

Shiner + Associates
 228 W. Washington St. No. 1025
 Chicago, IL 60606
 F: 312.202.1202

Erwin Consulting Services
 1 Lomb Drive
 Schaumburg, IL 60193
 F: 312.202.1202

PUBLIC BUILDING COMMISSION
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 ACROSS CHICAGO
 CHICAGO CPS

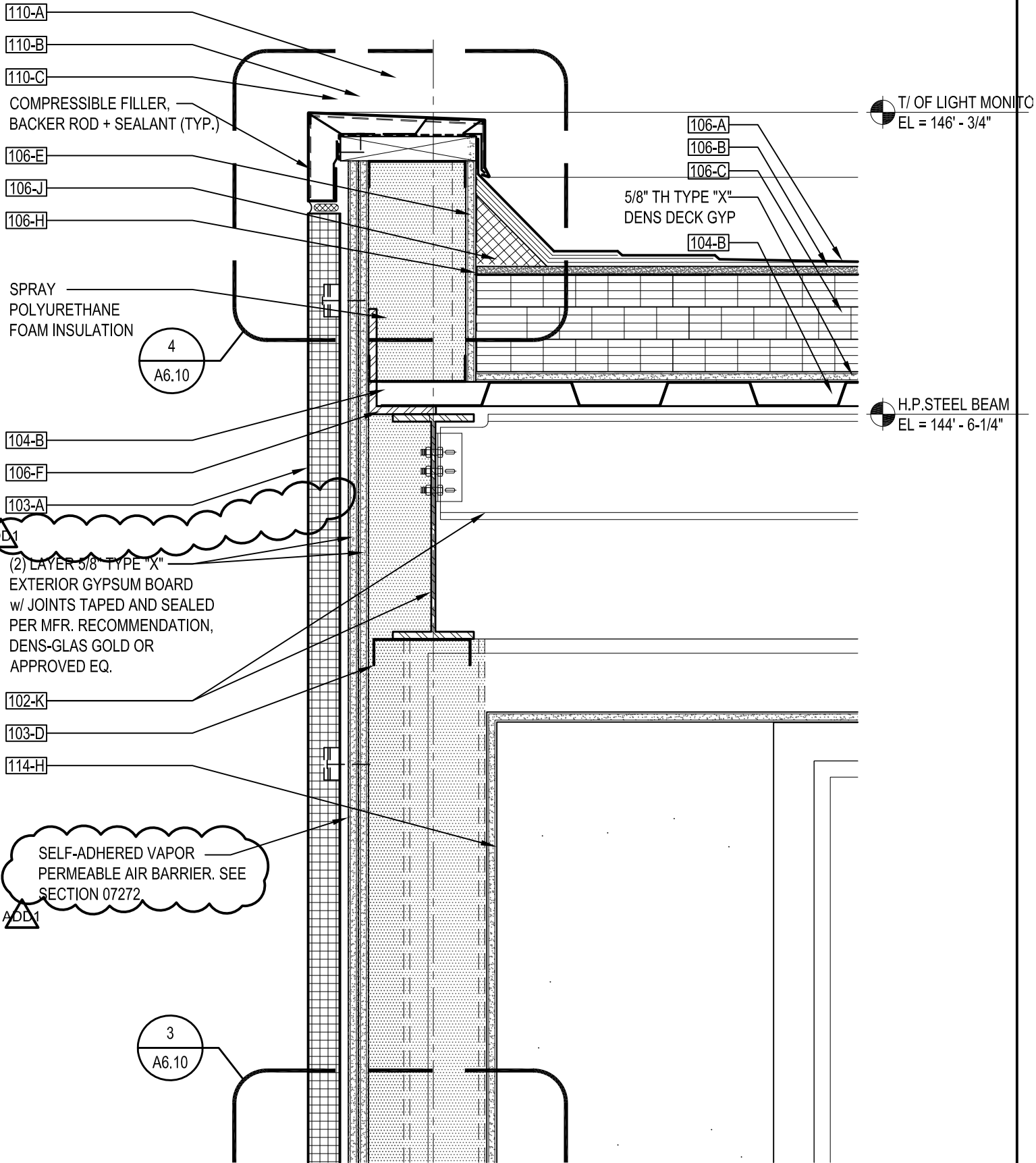
GARYV
ELEMENTARY SCHOOL ADDITION
 5225 N OAK PARK AVE CHICAGO, IL 60656
 CHICAGO PUBLIC SCHOOLS
 CITY OF CHICAGO, MAYOR REICHERD, DEPT

PBC Contract No.: 0511
 PBC Project No.: 05360
 SMNG-A Project No.: 0902 / UJV Project No.: P0903

Mark	Description	Date
ADDENDUM #1		05.03.10

SCALE: 1/12"=1'-0"
 Reference Sheet

Title
PARTIAL LIGHT MONITOR DETAIL
 Sheet
1/A6.9
ASK-5



T/O OF LIGHT MONITOR
EL = 146' - 3/4"

H.P. STEEL BEAM
EL = 144' - 6-1/4"

4
A6.10

3
A6.10

ADD1

(2) LAYER 5/8" TYPE "X"
EXTERIOR GYPSUM BOARD
w/ JOINTS TAPED AND SEALED
PER MFR. RECOMMENDATION,
DENS-GLAS GOLD OR
APPROVED EQ.

SELF-ADHERED VAPOR
PERMEABLE AIR BARRIER. SEE
SECTION 07272

ADD1

SMNG-A
Schroeder Murchie Nieniec Gazda-Auskalnis
Architects Ltd.
PBC Elementary School Design Architect

UrbanWorks
ARCHITECTURE INTERIORS PLANNING
ARCHITECT OF RECORD
213 W Institute Place Suite 710
Chicago, IL 60610
P: 312 202 1200
F: 312 202 1202

Terra Engineering
222 W Oak Street 4th Floor Chicago, IL 60604
LANDSCAPE ARCHITECTURE

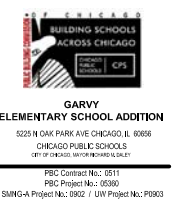
Matrix Engineering Corp
33 W Jackson Blvd 14th Floor Chicago, IL 60604
STRUCTURAL ENGINEER

Dynascept Inc
205 E Devon Ave Suite 218 Oak Park, IL 60468
MECHANICAL, PLUMBING, FIRE PROTECTION

Henneman Engineering Inc
205 S. Madison Street Suite 100 Chicago, IL 60606
ELECTRICAL, E AND LEAD ENGINEER

Shiner + Associates
205 W Washington St. No. 1025 Chicago, IL 60606
ACoustical CONSULTANT

Erwin Consulting Services
1 Devon Drive Schaumburg, IL 60196
ESTIMATING CONSULTANT



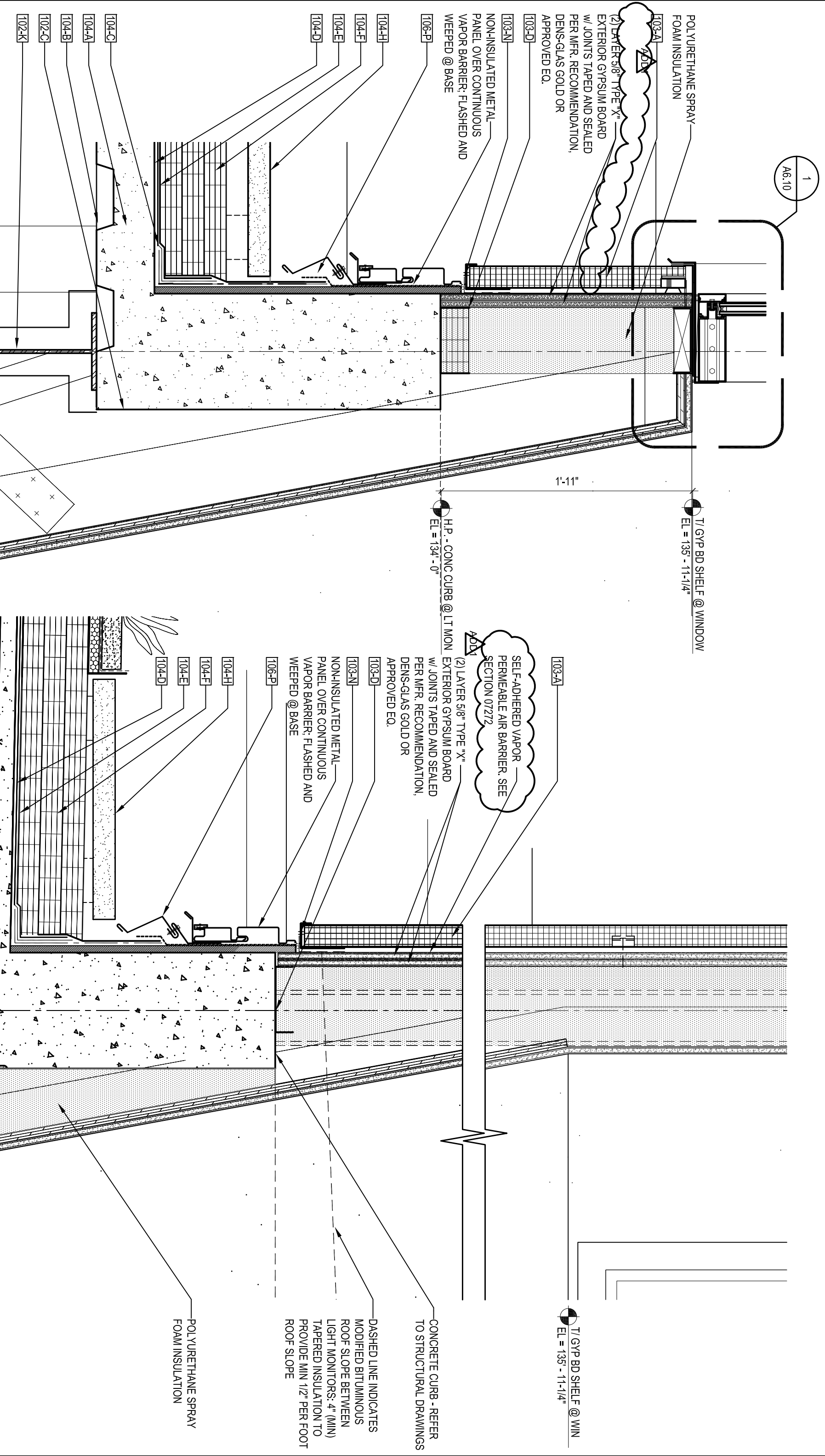
Issuance		
Mark	Description	Date
ADD1	ADDENDUM #1	05.03.10

SCALE: 1 1/2" = 1'-0"

Reference Sheet **3/A6.9**

Title **PARTIAL LIGHT MONITOR DETAIL**

Sheet **ASK-6**



1
A6.10

POLYURETHANE SPRAY
FOAM INSULATION

[103-A] (2) LAYER 5/8" TYPE "X" EXTERIOR GYPSUM BOARD w/ JOINTS TAPED AND SEALED PER MFR. RECOMMENDATION, DENS-GLAS GOLD OR APPROVED EQ.

[103-N] NON-INSULATED METAL PANEL OVER CONTINUOUS VAPOR BARRIER: FLASHED AND WEEPED @ BASE

[106-P] H.P. - CONC CURB @ LT MON

EL = 134' - 0"

[104-H]
[104-F]
[104-E]
[104-D]

[104-C]
[104-A]
[104-B]
[102-C]
[102-K]

T/GYP BD SHELF @ WINDOW
EL = 135' - 11-1/4"

1'-11"

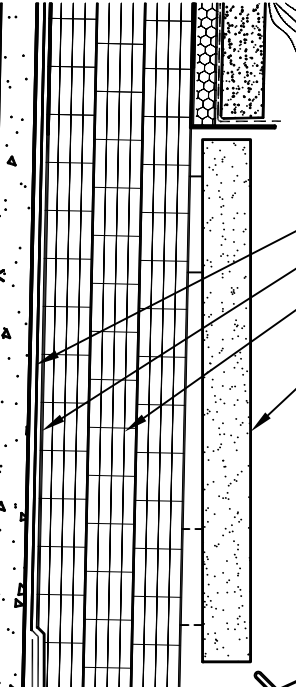
[103-A]

SELF-ADHERED VAPOR PERMEABLE AIR BARRIER. SEE SECTION 07272

[103-D] (2) LAYER 5/8" TYPE "X" EXTERIOR GYPSUM BOARD w/ JOINTS TAPED AND SEALED PER MFR. RECOMMENDATION, DENS-GLAS GOLD OR APPROVED EQ.

[103-N] NON-INSULATED METAL PANEL OVER CONTINUOUS VAPOR BARRIER: FLASHED AND WEEPED @ BASE

[104-H]
[104-F]
[104-E]
[104-D]



T/GYP BD SHELF @ WIN
EL = 135' - 11-1/4"

CONCRETE CURB - REFER TO STRUCTURAL DRAWINGS

DASHED LINE INDICATES MODIFIED BITUMINOUS ROOF SLOPE BETWEEN LIGHT MONITORS; 4" (MIN) TAPERED INSULATION TO PROVIDE MIN 1/2" PER FOOT ROOF SLOPE

POLYURETHANE SPRAY FOAM INSULATION

SMNG-A
Schnitzer (North) Nierend-Gardner/Adalids
PBC Elementary School Design Architect

UrbanWorks
ARCHITECTURE INTERIORS PLANNING
218 W. Madison Street, Suite 710
Chicago, IL 60604
P: 312.202.1000
F: 312.202.1022

Terra Engineering
LANDSCAPE & CIVIL ENGINEER
225 W. Ohio Street 4th Floor Chicago, IL 60604

Matrix Engineering Corp
STRUCTURAL ENGINEER
33 W. Jackson Blvd 4th Floor Chicago, IL 60604

Dynacept, Inc
MECHANICAL, PLUMBING, FIRE PROTECTION
2260 E Devon Av, Suite 218 Oak Park, IL 60468

Henneman Engineering Inc
ELECTRICAL, IT AND LEED ENGINEER
200 S. Wacker Drive Suite 850 Chicago, IL 60606

Shiner + Associates
ACOUSTICAL CONSULTANT
225 W. Washington St. No. 1625 Chicago, IL 60606

Ewin Consulting Services
ESTIMATING CONSULTANT
1 Omni Drive Schaumburg, IL 60193

CHICAGO PUBLIC SCHOOLS
BUILDING SCHOOLS
ACROSS CHICAGO
CPS

GARY
ELEMENTARY SCHOOL ADDITION
5225 N OAK PARK AVE CHICAGO, IL 60656
CHICAGO PUBLIC SCHOOLS
DTP OF CHICAGO, JAYCOR/RICHARD M. DALEY

PBC Contract No.: 0511
PBC Projctd No.: 0380
SMNG-A-Project No.: 0002 / LUW Project No.: P0903

Issuance	Description	Date
Mark	Description	Date
ADDENDUM #1		05.03.10

SCALE: 1/2" = 1'-0"

Reference Sheet

3 AND 4/A6.9

Title

PARTIAL LIGHT MONITOR DETAILS

Sheet

ASK-7

CHILLED WATER BUFFER TANK SCHEDULE

TAG	LOCATION	SIZE (IN)	CAPACITY GALLONS	FLUID TYPE	UNIT WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
BFT-1	MECHANICAL RM #1011	30ø	210	CHW	425	BRADFORD WHITE MODEL, CBT-30-075	①

① SPRAYED ON RIGID POLYURETHANE FOAM WITH ACRYLIC TOP COAT INSULATION

REFRIGERATION SCHEDULE

TAG	QTY	TYPE REFRIGERANT	NUMBER OF COMPRESSORS	NOMINAL TONS	MANUFACTURER	WEIGHT OF REFRIGERANT	HP / COMP.	LOCATION	REMOTE	SELF CONTAINING	AIR COOLED	REMARKS
CH-1/CKT#A	1	R-410A	2	50	CARRIER	42 LBS.	45 (2)	ROOF	-	YES	YES	SEE NOTES
CH-1/CKT#B	1	R-410A	2	50	CARRIER	43 LBS.	45 (2)	ROOF	-	YES	YES	SEE NOTES
CU-1	1	R-407(C)	1	2	LIEBERT	13.3 LBS.	2	ROOF	COMPR.	NO	YES	SEE NOTES

NOTES:

1. REMOVE EXPANSION VALVES, DEVICES AND CONNECTIONS FROM AIR STREAM.
2. INSTALL PRESSURE RELIEF VALVE ON HIGH PRESSURE SIDE OF SYSTEM. UPSTREAM FROM ANY LIQUID LINE SHUT OFF VALVES.
3. REMOVE REFRIGERATION PIPING SHALL BE TYPE K COPPER.
4. ALL JOINTS SHALL BE BRAZED.



SMNG-A
 Supervisor Maurice Herber Casada-Ausubelli
 Architects Ltd.
 PBC Elementary School Design Architect
 UrbanWorks
 ARCHITECTURE INTERIORS PLANNING
 ARCHITECT OF RECORD
 215 W. Randolph Plaza Suite 710
 Chicago, IL 60601
 P: 312 202 1200
 F: 312 202 1202

Team Engineering
 2201 N. Lincoln Ave. Suite 1000 Chicago, IL 60614
Mark Engineering Corp
 2201 N. Lincoln Ave. Suite 1000 Chicago, IL 60614
 P: 312 202 1200
Herbert Engineering Inc
 2201 N. Lincoln Ave. Suite 1000 Chicago, IL 60614
 P: 312 202 1200
Shiner & Associates
 2201 N. Lincoln Ave. Suite 1000 Chicago, IL 60614
 P: 312 202 1200
Emin Consulting Services
 2201 N. Lincoln Ave. Suite 1000 Chicago, IL 60614
 P: 312 202 1200



GARVY
ELEMENTARY SCHOOL ADDITION
 5225 N OAK PARK AVE CHICAGO, IL 60656
 CHICAGO PUBLIC SCHOOLS
 CITY OF CHICAGO, MAYOR RICHARD M. DALEY
 PBC Contract No.: 0511
 PBC Project No.: 05390
 SMNG-A Project No.: 0902 / UW Project No.: P0903

Mark	Description	Date
△	ADDENDUM 1	05/03/10

Issuance
 SCALE: NONE
 Reference Sheet
M7.3
 Sheet

MECHANICAL SCHEDULES
MSK-1

EM. BRANCH PANEL	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN	AIC RATING
EM	120/ 208	3	4	100A	MLO	10,000
CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS						
COPPER GROUND BAR						
LOAD						LOAD
FIRST FLOOR EXIT SIGNS	L 1	20	1	50		SECOND FLOOR EXIT SIGNS
FIRST FLOOR SOUTH CORRIDOR LTG	L 1	20	3	1,178	2 20 1 L	SECOND FLOOR CORRIDOR LTG
FIRST FLOOR NORTH CORRIDOR LTG	L 1	20	5	1,178	4 20 1 L	RM2021, 2014, 2015, 2016, 2009, 2010 Lighting
MECH/ELEC./ELEV. RMS., RESTROOM, FIRST FLOOR LTG	L 1	20	7	682	6 20 1 L	SPARE
EXTERIOR LTG	L 1	20	9	1,230	8 20 1	SPARE
FIRST FLOOR EXIT SIGNS	L 1	20	11	50	10 20 1	SPARE
SPARE					12 20 1	SPARE
SPARE					14 20 1	SPARE
SPARE					16 20 1	SPARE
SPARE					18 20 1	SPARE
SPARE					20 20 1	SPARE
SPARE					22 20 1	SPARE
SPARE					24 20 1	SPARE
SPARE					26 20 1	FIRE ALARM CONTROL PANEL
SPARE					28 20 1	SPARE
SPARE					30 20 1	RELAY SWITCH
SPARE					32 20 1	SPACE
SPARE					34 20 1	SPACE
SPARE					36 20 1	SPACE
PHASE A					TCL VA	7,738
PHASE B					DEMAND VA	
PHASE C					HI-PH CONN. A	26
TCL					DEMAND A	21

EM. BRANCH PANEL	VOLTAGE	PHASE	WIRE	BUS SIZE	MAIN	AIC RATING
EPP	120/ 208	3	4	400A	MLO	22,000
CODE: L=LIGHTING, R=RECEPTACLES, M=MOTORS						
COPPER GROUND BAR						
LOAD						LOAD
ELEVATOR	M 1	200	1	18,013	2 15 1 M	SUMP PUMP
	M 1	200	3	864	2 15 1 M	SPARE
	M 1	200	5	18,013	4 15 1 M	SPARE
BAS PANEL					6 15 1	SPARE
JACKET HEATER	1	20	7	1,000	8 20 1	GENERATOR BATTERY CHARGER
RESCUE ASSISTANCE CALL INDICATOR	1	20	9	1,200	10 45 2	AC UNIT (MDF ROOM)
OIL COOLER	M 1	20	13	384	12 45	
ELEVATOR CONTROL RM.					14 25 2	CU-1
HEATER	1	20	15	1,248	16 25	
ELEVATOR CONTROL RM. AUTOMATIC					16 25	SS & DD PANEL
FRONT ENTRANCE DOOR GENERATOR ENCLOSURE RECEPTACLES	1	20	17	1,200	18 20 1	DOOR HOLDER PANEL
ELEVATOR CAB LTG.	1	20	19	1,200	20 20 1	SPARE
SPARE					22 20 1	SPACE
SPARE					24	SPACE
SPARE					26	SPACE
SPARE					28	SPACE
SPARE					30	SPACE
PHASE A					TCL VA	72,639
PHASE B					DEMAND VA	
PHASE C					HI-PH CONN. A	210
TCL					DEMAND A	202

SMNG-A
Schooner Middle Natick Grade/Analisis
Public Elementary School Design Architect

UrbanWorks
ARCHITECTURE INTERIORS PLANNING
ARCHITECT OF RECORD
213 W. Madison Plaza Suite 770
Chicago, IL 60604
P: 312.202.1200
F: 312.202.1202

Terra Engineering
LANDSCAPE & CIVIL ENGINEER
225 W. Ohio Street 4th Floor Chicago, IL 60604

Matrix Engineering Corp
STRUCTURAL ENGINEER
33 W. Jackson Blvd 4th Floor Chicago, IL 60604

Dynacept, Inc
MECHANICAL, PLUMBING, FIRE PROTECTION
2250 E Devon Av Suite 218 Oak Park, IL 60018

Henneman Engineering Inc
ELECTRICAL, IT AND LEED ENGINEER
200 S. Wacker Drive Suite 850 Chicago, IL 60606

Shiner + Associates
ACUSTICAL CONSULTANT
225 W. Washington St No 1625 Chicago, IL 60606

Erwin Consulting Services
ESTIMATING CONSULTANT
1 Omni Drive Schaumburg IL 60193

Garvy
ELEMENTARY SCHOOL ADDITION
5225 N OAK PARK AVE CHICAGO, IL 60656
CHICAGO PUBLIC SCHOOLS
DIV. OF CHICAGO MAYOR RICHARD M. DALEY

PBC Contract No.: 0511
PBC Projed No.: 05380
SMNG-A Project No.: 0902 / UW Project No.: P0903

Public Building Commission
CHICAGO SCHOOLS
CPS

ISSUANCE

Mark	Description	Date
A	ISSUED FOR ADDENDUM #1	4/30/10

SCALE: Reference Sheet
E6.1

ADDENDUM #1
REVISIONS TO
SHEET E6.1

Sheet
ESK-1

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DOUBLE CHECK VALVE, WILKINS MODEL 350 OR EQUAL; TESTABLE UNIT ASSE. 10115; PROVIDE STRAINER.



WALL ADDRESS PANEL

ACQUINAD, CE 2000, 16-316

PLUMBING FIXTURE SCHEDULE

FIXTURE TYPE	FIXTURE MATERIAL	FIXTURE SYMBOL	FIXTURE	VALVE	SEAT	FAUCET	FAUCET AERATOR	FLOW RATE (GPM)	FIXTURE QUANTITY	TRAP	WASTE	VENT	C.W.	H.W.	REMARKS
HOSE BBB	CHROME FLAIED	HB-1	-	-	-	(2) 293 (C) EQUAL	-	-	8	-	-	-	COPPER 3/4"	-	PROVIDE TESTABLE DOUBLE CHECK VALVE FOR EACH HOSE BBB WITH ACCESS PANEL.
THERMOSTATIC															

SMNG-A
 Spangler Luerthe Nierme Garcia-Ausubals Architects Ltd.
 PBC, Elementary School Design Architect
 ARCHITECTURE INTERIORS PLANNING
 ARCHITECT OF RECORD
 219 W Institute Plaza Suite 710
 Chicago, IL 60610
 P: 312.202.1200
 F: 312.202.1202

UrbanWorks
 ARCHITECTURE INTERIORS PLANNING
 ARCHITECT OF RECORD
 219 W Institute Plaza Suite 710
 Chicago, IL 60610
 P: 312.202.1200
 F: 312.202.1202

Public Building Commission
 BUILDING SCHOOLS
 ACROSS CHICAGO
 CHICAGO SCHOOLS
 CPS

GARVY
 ELEMENTARY SCHOOL ADDITION
 5225 N OAK PARK AVE CHICAGO, IL 60656
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 CITY OF CHICAGO, MAYOR RICHARD M. DALRY
 PBC Contract No.: 0811
 PBC Project No.: 05380
 SMNG-A Project No.: 0902 / UW Project No.: P0903

Issuance		Description		Date	
Mark	△	ADDENDUM #1		5-3-10	

PLUMBING SCHEDULES
 SCALE: NONE
 Reference Sheet
 Sheet
PSK-1