

April 26, 2013

Ms. Lynn Dittmer
Metropolitan Area Planning Agency
2222 Cuming Street
Omaha, NE 68102

**Re: South Omaha Brownfields Coalition Assessment Grant
Limited Phase II ESA Report
Lofts at South 16th Street Project
801 S. 16th St., 1501 & 1507 Leavenworth St., & 1508 Marcy St., Omaha, NE**

Attention Ms. Dittmer:

The purpose of this letter is to summarize the Phase II Environmental Site Assessment (ESA) sampling activities that were performed by Alfred Benesch & Company (Benesch) at the Lofts at South 16th Street project site located at the following parcel addresses in downtown Omaha, NE: 801 South 16th Street, 1501 and 1507 Leavenworth Street, and 1508 Marcy Street. This Phase II ESA is being prepared for the Metropolitan Area Planning Agency (MAPA) and was conducted as part of the South Omaha Brownfields Coalition Assessment Grant being administered by MAPA. A Phase I ESA (Benesch, January 2013) was previously prepared for this redevelopment site. The Phase I ESA report recommended that additional assessment activities be conducted at the site due to the presence of *recognized environmental conditions* associated with past uses of the project site for automotive services, metal plating, a diesel salvage yard and tractor painting.

The activities conducted as part of the Phase II ESA included sub-surface soil, soil vapor and groundwater sampling, and an asbestos survey of all structures at the project site. Field work was performed in general conformance with ASTM Standard E1903-11 for Phase II Environmental Site Assessments, the *Phase II Investigation Work Plan for Lofts at So. 16th Street* (Benesch, 1/22/2013), the project and site specific QAPP, and soil and groundwater SOPs. Field work for the asbestos survey was conducted on March 13, 2013. Field work for the soil, soil vapor, and groundwater sampling was conducted from March 20 to 27, 2013. Prior to field work, Benesch notified the Nebraska One Call System for utility locates and kept record of responses. The Phase II assessment project area is depicted on the attached Site Location Map (Figure 1).

Field Activities

Soil Sampling

Benesch advanced twenty-seven (27) borings in the project area as follows:

- Two (2) borings were advanced inside of the Kraft building.
- Five (5) borings were advanced in the alley along the south exterior wall of the Kraft building.

- One (1) boring was advanced in the alley near So. 15th Street.
- Nine (9) borings were advanced within the boundaries of the 1501 and 1507 Leavenworth Street parcels.
- Five (5) borings were advanced in the vicinity of the 1-bay and 5-bay garages at the Monico parcel.
- Five (5) borings were advanced along the southern boundary of the Monico parcel.

The Project site borings were advanced in conformance with the Phase II Work Plan based on historic source areas, estimated contaminant migration, and parcel boundaries. The objective of advancing borings at the project site is to assess for the potential presence of soil, soil vapor and groundwater impacts resulting from the historic uses of the Kraft building (former automotive services and plating facility) and the Monico parcel (diesel repair/salvage), and assist with redevelopment planning. The project site is slated for redevelopment as residential lofts with some retail space. Note that large portions of the former Monico diesel facility generally comprising the southern half of the project site were inaccessible for boring advancement during field work.

Based on limited site access and field conditions, three proposed borings (SB-2, SB-19 and SB-20) were not advanced. In addition, three borings (SB-1, SB-15 and SB-18) were offset based on site conditions and the location of utilities. The Lofts at South 16th Project site boring locations are depicted on the attached Boring Location Map (Figure 2).



The borings were installed using a track mounted Geoprobe unit operated by Saberprobe, LLC of Omaha, NE. The samples were collected using Macro-Core samplers fitted with polyvinyl chloride (PVC) liners. With the exception of SB-21 (groundwater sample location), borings were advanced to a depth of 15' below ground surface (bgs). Composite samples were collected for field screening purposes from the 0-3', 3-7', 7-11' and 11-15' intervals. The composite soil samples were split into two aliquots with one aliquot placed in a glass jar, covered with aluminum foil and allowed to equilibrate at ambient temperature (minimum of 65 deg. F) for a minimum of 15 minutes. A headspace analysis of each equilibrated sample was conducted using a field photoionization detector (PID) equipped with a 10.7 eV bulb. The remaining aliquot was placed into one 4-ounce jar, sealed and packed on ice.

Fill material, including a mixture of rock, sand, clay, gravel, brick, concrete and rubble was observed within the upper 1 to 5 feet of more than half of the project site borings. Cinders or coal pieces were observed at within the upper 1 to 5 feet of borings SB-21, SB-23 and SB-24. Discolored soils (black and green) or odors indicative of petroleum contamination were not observed in any of the project site borings. PID readings were generally non-detect or slightly above non-detect in all borings. Boring logs

for all project site borings advanced during field work are provided as an attachment to this report. All borings advanced at the project site were backfilled with hydrated bentonite chips upon completion, and the surface was generally restored to its original condition. Because low PID readings were observed at all borings, soil cuttings were not containerized and were scattered at the project site.

Soil samples were collected from the 0-3' interval from borings at SB-1, SB-7, SB-9, SB-14, SB-21, SB-26, SB-28, and SB-30 for Total RCRA metals plus mercury analysis by EPA method 6010C/7471B. Soil samples were collected from SB-4 (0-3'), SB-7 (0-3'), SB-9 (0-3'), SB-13 (0-3'), SB-14 (0-3'), SB-23 (3-7'), SB-26 (0-3'), and SB-29 (11-15') for analysis of VOCs by EPA method SW8260B, and total extractable hydrocarbons (TEH) by Iowa Method OA-2. All samples were labeled, packed on ice, and submitted under chain of custody to Test America Laboratories in Cedar Falls, Iowa. The laboratory reports and chain of custody documentation is provided as an attachment to this report.

Arsenic was present in all soil borings above the NDEQ Remedial Goals (RGs) for the Voluntary Cleanup Program (VCP) residential standard which is 0.39 mg/kg. Concentrations of Arsenic ranged from 5.78 mg/kg (SB-7, alley) to 36.6 mg/kg (SB-9, SW corner 1507 Leavenworth parcel), with an average concentration of 13.8 mg/kg at site borings. Note that the industrial RG for Arsenic is 16. Lead was detected slightly above residential (but not industrial) RGs at one soil boring (SB-9). The arsenic levels observed, although above the extremely low residential soil RGs, may be typical of background levels in areas of Nebraska which are known to range from 5 to perhaps 50 mg/kg in native soils and fill material. As such, observed arsenic concentrations in project site soils are not a significant concern with respect to property liability and/or constructability concerns with the projected redevelopment of the project site into loft apartments. Concentrations of lead slightly above residential RGs at one location are considered isolated and not widespread. There is no indication that the project site has been impacted by contamination from the Omaha Lead Site (OLS), a USEPA NPL site related to the former Asarco lead smelting operation in downtown Omaha. Therefore, observed lead concentrations in project site soils are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Total extractable hydrocarbons (TEH) as gasoline and diesel were detected in soil boring SB-4. Note however that the NDEQ has not established residential or industrial standards for TEH in soils at VCP sites. In addition, the NDEQ standards for RBCA Tier I Site Assessments for petroleum sites in Nebraska do not include look up tables and values for TEH in soils at remedial action class three (RAC-3) sites, where there is no industrial or potable water use in the area. In summary, the presence of TEH in soils at SB-4 is considered isolated, of generally insignificant concentration, and not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Soil Vapor

Based on field screening results and field conditions, soil vapor points were installed in borings SB-4, SB-13 and SB-30 to assess the soil vapor to enclosed space pathway. The vapor points were set at 6' bgs and vapor samples were collected using 1L SUMMA® canisters. Soil vapor samples were collected according to *Environmental Standard Operating Procedures for Soil Vapor Sampling* (Benesch). Once the samples were collected, the tubing was removed from the boring and the surface was restored to its original condition.

The vapor samples were labeled and submitted under chain of custody to Test America Laboratories in Knoxville, TN for full VOC analysis by EPA method TO-15. The rationale for vapor sampling locations is as

follows: Boring SB-4 is situated within the former Kraft building, SB-30 is located near the Monico 5-bay garage, and SB-13 is located along 1507 Leavenworth eastern parcel boundary down-gradient from the former Kraft building. Five (5) VOCs were detected in the soil vapor samples collected at the project site; however, laboratory concentrations of these constituents were minimal and considerably below the NDEQ soil vapor VCP RGs for residential use. The laboratory reports and chain of custody documentation for soil vapor sampling is provided as an attachment to this report.

Groundwater Sampling

A groundwater sample was collected from boring SB-21 for laboratory analysis of Total RCRA metals plus mercury by EPA method 6010C/7471B, VOC analysis by EPA method SW8260B, and total extractable hydrocarbons (TEH) by Iowa Method OA-2. All samples were labeled, packed on ice, and submitted under chain of custody to Test America Laboratories in Cedar Falls, Iowa. The laboratory reports and chain of custody documentation for groundwater sampling is provided as an attachment to this report.

Total extractable hydrocarbons (TEH) as gasoline and diesel were detected in groundwater sample SB-21. Note however that the NDEQ has not established residential or industrial standards for TEH in groundwater at VCP sites. In addition, the NDEQ standards for RBCA Tier I Site Assessments for petroleum sites in Nebraska do not include look up tables and values for TEH in groundwater at RAC-3 sites, where there is no industrial or potable water use in the area. In summary, the presence of TEH in groundwater at SB-21 is considered a generally minimal concentration and is not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Quality Assurance/Quality Control

Duplicate samples for soil vapor, groundwater and building materials and rinsate samples were collected for quality assurance and quality control (QA/QC) purposes and were submitted for the same analysis as the parent samples. These duplicate samples were submitted for analysis to assess the precision of the analysis and the variability of the media. Note that a duplicate soil sample and trip blank were inadvertently not collected during field work. Based on review of the duplicate sample data, all data can be relied upon for its intended purpose with the following exceptions:

- Barium concentrations in soil and groundwater may be generally overstated on the laboratory reports.
- Issues with concentrations of TEH in groundwater may be attributable to laboratory quality issues; or the sample and duplicate collected may not be homogenous samples.

Data validation sets are included as an attachment to this report.

Summary of Laboratory Results for Soil, Soil Vapor and Groundwater Sampling

Based on laboratory results, the following table provides information for sample locations where residential RGs were exceeded. The same information is also depicted as a map on Figure 3 (attached).

TABLE 1 Laboratory Results for Soil, Soil Vapor, and Groundwater Sampling Sample Locations Exceeding NDEQ VCP Remediation Goals (RGs)					
Boring	Media	Constituent	Result	VCP Residential Standard	VCP Industrial Standard
SB-1 (0-3')	Soil	Arsenic	7.24 mg/kg	0.39 mg/kg	16 mg/kg
B-4 (3-7')	Soil	TEH, total	2,560 µg/L	*	*
SB-4 (3-7')	Soil	TEH as gasoline	24.5 µg/L	*	*
SB-4 (3-7')	Soil	TEH as diesel	607 µg/L	*	*
SB-4 (3-7')	Soil	TEH as waste oil	1,930 µg/L	*	*
SB-7 (0-3')	Soil	Arsenic	5.78 mg/kg	0.39 mg/kg	16 mg/kg
SB-9 (0-3')	Soil	Arsenic	36.6 mg/kg	0.39 mg/kg	16 mg/kg
SB-9 (0-3')	Soil	Lead	452 mg/kg	400 mg/kg	750 mg/kg
SB-14 (0-3')	Soil	Arsenic	7.40 mg/kg	0.39 mg/kg	16 mg/kg
SB-21 (0-3')	Soil	Arsenic	16.4 mg/kg	0.39 mg/kg	16 mg/kg
SB-21	Groundwater	TEH, total	10,400 µg/L	*	*
SB-21	Groundwater	TEH as gasoline	9,870 µg/L	*	*
SB-21	Groundwater	TEH as diesel	480 µg/L	*	*
SB-26 (0-3')	Soil	Arsenic	12.0 mg/kg	0.39 mg/kg	16 mg/kg
SB-28 (-3')	Soil	Arsenic	13.3 mg/kg	16 mg/kg	0.39 mg/kg
SB-30 (0-3')	Soil	Arsenic	11.7 mg/kg	16 mg/kg	0.39 mg/kg

*Note: Soil results and standards are in mg/kg, soil vapor results and standards are in µg/m³, and groundwater results and standards are in µg/L, *The NDEQ has not established soil & groundwater VCP standards for total extractable hydrocarbons (TEH).*

Asbestos Survey

An asbestos survey was conducted to determine the presence of Asbestos Containing Material (ACM) within the project site structures. An asbestos containing material is defined by the State of Nebraska, EPA, and OSHA regulations as any material or product that contains more than 1% asbestos. ACM was found to be present in the following building materials at the property structures:

- Monico 5-car garage, second floor office, floor tile and mastic, 146 SF.
- Kraft building, floor tile and mastic, 400 SF main floor NE office area; 80 SF each main floor men’s and women’s restrooms; 430 SF main floor NW office area; and window glazing compounds on 17 windows on the main floor and one window on the lower level (95 LF per window totaling 1710 LF).

Note that all the above described ACM were observed to be non-friable and in generally good condition, and therefore, the Property ACM do not pose an immediate threat to human health. If the ACM

materials will be disturbed during construction, renovation, or the structure demolition, such ACM should be removed according to Nebraska Asbestos Control Program Regulations and with proper notification provided to the Nebraska Department of Health and Human Services and the City of Omaha. Please refer to the attached Asbestos Surveys for the Kraft and Monico parcels for additional details regarding the ACM survey.

Analysis and Recommendations

Observed levels of Arsenic in subsurface soils at the project site above residential soil RGs may be typical of background levels in areas of Nebraska. As such, observed arsenic concentrations in project site soils are not a significant concern with respect to property liability and/or constructability concerns with the projected redevelopment of the project site into loft apartments. Concentrations of lead slightly above residential RGs at one location are considered isolated and not widespread. In addition, there is no indication that the project site has been impacted by contamination from the Omaha Lead Site (OLS), a USEPA NPL site related to the former Asarco lead smelting operation in downtown Omaha. Therefore, observed lead concentrations in project site soils are not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

The presence of TEH in soils at SB-4 is considered isolated, of generally insignificant concentration, and not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site. Also the presence of TEH in groundwater at SB-21 is considered a generally minimal concentration and is not a significant concern with respect to property liability and/or constructability concerns with the redevelopment of the project site.

Observed ACM in project structures is currently non-friable and in generally good condition, and therefore, the Property ACM do not pose an immediate threat to human health. If the ACM materials will be disturbed during construction, renovation, or the structure demolition, such ACM should be removed according to Nebraska Asbestos Control Program Regulations and with proper notification provided to the Nebraska Department of Health and Human Services and the City of Omaha.

If you have any questions regarding the conduct or conclusions of this assessment, please do not hesitate to contact either of the undersigned at (402) 333-5792.

Respectfully Submitted,



Patrick L. Sward, JD
Project Scientist II



Brian Fetter
Project Scientist II

Attachments:

- Figures
- Boring Logs
- Field Notes
- Lab Data
- Data Validation Sets
- ACM Surveys

Sources (not provided as an attachment; previously submitted or referenced in report):

ASTM International, *ASTM Standard E1903-11, Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*.

Benesch, *Phase I ESA, 801 S. 16th St., 1501 & 1507 Leavenworth St., and 1508 Marcy St., Omaha, NE*, January 2013.

Benesch, *Phase II Investigation Work Plan for Lofts at South 16th Street*, 1/22/13.

Benesch, *QAPP Version 0, Brownfields Coalition Assessment Grant, MAPA, SORA, Omaha, NE*, 5/21/12.

Benesch, *QAPP Supplement 2.1, Brownfields Coalition Assessment Grant, MAPA, SORA, Omaha, NE*, 3/13/13

Benesch, *Environmental Standard for Soil Vapor Sampling*.

NDEQ, Nebraska Voluntary Cleanup Program, VCP Remediation Goals (RGs), residential and industrial values (2012).

REAC, *Standard Operating Procedures, Groundwater Well Sampling*, SOP 2007.

USEPA Environmental Response Team, *Standard Operating Procedures, Soil Sampling*, SOP 2012.

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