

above ground storage tank
 air quality
asbestos/lead-based paint
baseline environmental assessment
 brownfield redevelopment
building/infrastructure restoration
 caisson/piles
 coatings
 concrete
construction materials services
 corrosion
 dewatering
 drilling
 due care analysis
 earth retention system
environmental site assessment
 facility asset management
 failure analyses
 forensic engineering
 foundation engineering
 geodynamic/vibration
 geophysical survey
 geosynthetic
greyfield redevelopment
 ground modification
hydrogeologic evaluation
 industrial hygiene
 indoor air quality/mold
 instrumentation
 ISO14001 EMS
 masonry/stone
 metals
 nondestructive testing
pavement evaluation/design
property condition assessment
 regulatory compliance
 remediation
 risk assessment
roof system management
 sealants/waterproofing
 settlement analysis
 slope stability
storm water management
 structural steel/welding
underground storage tank

**BASELINE ENVIRONMENTAL ASSESSMENT
CONDUCTED PURSUANT TO
SECTION 20126(1)(C)
OF 1994 PA 451, PART 201, AS AMENDED**

**CENTRAL PARCEL
COMMERCE TOWNSHIP, MICHIGAN**

**SME Project Number: SE52533-03
December 22, 2006**

**(Revised July 8, 2009 to address
clerical/administrative errors.)**



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1. IDENTIFICATION OF AUTHOR AND DATE BEA WAS CONDUCTED AND DATE BEA WAS COMPLETED

This Baseline Environmental Assessment (BEA) report was prepared by Mr. Jason C. Lafayette and reviewed by Mr. Daniel O. Roeser, PG. This BEA was conducted on November 20, 2006, and completed on December 22, 2006.

2. INTRODUCTION

This report presents the results of Soil and Materials Engineers, Inc.'s (SME's) BEA of the property located near the northeast corner of Welch and West Maple Roads in Commerce Township, Oakland County, Michigan, hereinafter referred to as the Property (a.k.a. Central Parcel). The Property consists of one parcel of land, totaling approximately 22 acres, previously assessed and described as part of the "31-Acre Site". Figure 1 of Attachment A is a Property Location Map. Figure 2 in Attachment A depicts the location of the Property on the 31-Acre Site. The legal description and tax identification number of the Property is included in Attachment B.

SME prepared and submitted this BEA on behalf of William Beaumont Hospital pursuant to Section 20126 of Part 201 of the NREPA, Public Act 451, 1994, as amended. This report is intended to meet the requirements of a Category "N" BEA and was prepared according to Part 9 of the Administrative Rules for Part 201, Baseline Environmental Assessments, dated December 20, 2002.

2.1 Current Uses

The current uses of the Property were evaluated and discussed in the following SME reports:

- SME's October 8, 2004, Phase I Environmental Site Assessment (ESA);
- SME's October 14, 2004, BEA; and
- SME's August 14, 2006, Phase I ESA Update.

On August 19, 2004, and June 12, 2006, SME performed observational walkovers of the Property. SME's Phase I ESA and Phase I ESA Update reports are included in Attachments C and D.

At the time of SME's walkovers, the Property consisted of approximately 22 acres of vacant land. The Property was generally covered by densely wooded areas with thick underbrush.

SME observed a marsh with standing water along the northern Property boundary, and several low-lying wet areas were present on the north and central portions of the Property, while the southern portion of the Property consisted mostly of open grass fields. Overhead utility lines traversed the southern and northern Property boundaries. SME observed a paved access road that extended from West Maple Road to the central portion of the Property; several two-tracks were also observed throughout the Property. SME observed no operations, activities and processes at the Property during the walkovers.

Photographs taken during the 2004 walkover are included in Appendix C of SME's October 8, 2004, Phase I ESA in Attachment C.

2.2 Historical Uses

The historical uses of the Property were evaluated as part of SME's October 8, 2004, Phase I ESA. Based on SME's review of historical information, it appeared the Property was vacant and/or utilized for agricultural purposes from at least 1949 to 1954. The Property was developed with a muffler testing facility, automobile insurance company, and towing service from approximately 1963 and 1997. From 1997 to present, the Property appeared vacant. During the 2004 and 2006 walkovers, SME observed no buildings, foundations, vehicles, or equipment located on the Property. Figure 3 in Appendix A of SME's October 8, 2004, Phase I ESA included in Attachment C depicts historical Property features on the 31-Acre Site.

2.3 Basis for BEA

SME's 2004 Phase I ESA identified the following recognized environmental conditions (RECs) in connection with the Property:

1. Historical excavation and backfilling activities on the Property; and
2. Historical off-site drum storage associated with the former Venture Rim Products operations.

To address the identified RECs, SME conducted subsurface assessments at the Property that consisted of test pit and soil probe sampling activities on September 9 and 10, 2004, and soil probe sampling activities on June 14, 2006. The subsurface assessments are further discussed in Section 4.0. For the purposes of this BEA, SME compared analytical results from the subsurface assessments to the 2006 MDEQ Part 201 Generic Residential Cleanup Criteria, judged by SME to be applicable. Tables 1 and 2 in Attachment F present SME's laboratory analytical results compared to applicable MDEQ residential cleanup criteria.

The results of SME's subsurface assessments conducted at the Property indicated arsenic was present in soil, and trichloroethene (TCE) was present in groundwater at concentrations exceeding MDEQ Part 201 Generic Residential Cleanup Criteria. Therefore, the Property is indicated to be a "facility" as defined by Part 201.

3. PROPERTY DESCRIPTION & INTENDED HAZARDOUS SUBSTANCE USE

3.1 Property Description

The Property was located in the southwest quarter of Section 25, Township 2 North, Range 8 East, in Commerce Township, Oakland County, Michigan. More specifically, the Property was located near the northeast corner of Welch and West Maple Roads. Figure 2 of Attachment A depicts the Property boundaries.

The Property consists of approximately 22 acres of relatively flat land. At the time of SME's walkovers, the Property was vacant land.

The Property tax identification numbers are 17-25-376-017, 17-25-376-021, and 17-25-376-035. The Property was zoned I-1, light industrial.

3.2 Proposed Hazardous Substance Use

SME understands William Beaumont Hospital purchased the Property on October 26, 2006, and the Property will remain vacant until the development of a possible medical facility and parking areas. At the time of acquisition, the specific nature/use of the proposed facility, hence future hazardous substances use, had not been determined. Therefore, SME prepared this Category "N" BEA as a means of distinguishing a new release from existing contamination. Once the medical facility operations and proposed chemical use plans are finalized, the Owner will supplement the BEA file with "significant hazardous substance use" information.

4. KNOWN CONTAMINATION

The following is a summary of two SME subsurface assessments conducted on the Property.

2004 Subsurface Assessment

On September 9 and 10, 2004, SME conducted three soil probes (SP1-SP3) and six test pits (TP9-TP14) on the Property to assess the RECs. Utilizing a direct-push soil probe rig, SME advanced the soil probes to depths ranging from approximately 16 to 20 feet below ground surface (BG). Mr. Jeffery Edwards, was on site during the soil probe and test pit activities. SME observed subsurface conditions, screened samples with a photo-ionization detector (PID), and collected samples for potential analytical testing.

2006 Subsurface Assessment

On June 14, 2006, SME conducted six soil probes (SP102-SP107) on the Property as part of a subsurface assessment of the entire development parcel, which extends offsite. Utilizing a direct-push soil probe rig, SME advanced the soil probes to approximately 12 to 28 feet BG. SME representative, Mr. Jason C. Lafayette was on site during the soil probe activities. SME observed subsurface conditions, screened samples with a photo-ionization detector (PID), and collected samples for potential analytical testing.

SME submitted a total of two soil samples and eight groundwater samples from the two subsurface assessments for various laboratory analyses, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAHs), and the 10 Michigan metals. Figure 2 of Attachment A depicts the locations of the soil probes completed on the Property. Field procedures and results of SME's soil and groundwater sampling activities are discussed below.

4.1 SME Field Procedures

4.1.1 Soil Samples

Soil samples were obtained from a 1-3/8 inch outside diameter GeoProbe® large bore sampler lined with a disposable acetate liner. The soil samples were obtained from the acetate liner by cutting open the liner with a utility knife and transferring the soil to pre-cleaned glass jars provided by the analytical laboratory, as well as glass jars for classification and PID screening. A new acetate liner was used for each soil sample. The sampler and other down-hole tools were washed with high-pressure, detergent rinse water prior to collecting each soil sample. In addition, the utility knife was cleaned with a laboratory grade detergent and rinsed with distilled water prior to cutting each acetate liner. A new pair of disposable nitrile sampling gloves was used to transfer

each sample into the sample jars. Additional grab soil samples were obtained directly from soil mound excavation areas using laboratory supplied glass jars.

PID field screening was conducted by allowing time for the headspace above the collected soils to equilibrate in the glass jars. The jars were then opened enough to insert the tip of a PID. The PID registers the presence of volatile organic vapors on a parts-per-million (ppm) scale. PID screening results are presented on the soil probe logs in Attachment E of this report. Soil cuttings generated from the soil probes were returned to the probe holes. The remaining spaces in the soil probe holes were backfilled with bentonite chips.

4.1.2 Groundwater Sampling

A temporary well point was installed and groundwater samples were collected using a PVC, GeoProbe® Screen Point-15 Sampler, driven into the saturated zone. The well screens used by SME were five feet in length, with a slot size of 0.010 inches. The top of the well screen was either placed at the depth groundwater was encountered, or approximately one foot above the water table; groundwater was purged at a low flow rate prior to sampling. The groundwater screening depths are presented on Table 2 in Attachment F. Purging was conducted using a peristaltic pump and polyethylene tubing. Purged groundwater obtained from the soil probe holes during groundwater sampling was returned to the holes prior to backfilling with soil cuttings. Groundwater samples were obtained directly from a peristaltic pump at a low-flow rate.

4.1.3 Sample Preservation and Analytical Protocol

As indicated above, soil and groundwater samples were placed into the appropriate containers provided by the laboratory. Soil samples collected for VOC analysis were obtained in general accordance with USEPA Method 5035 and were methanol preserved in the field.

Samples collected for potential analytical testing were transferred to an ice-packed cooler upon collection, and were kept cool until delivery to the analytical laboratory. SME followed chain of custody protocol. Quantum Laboratories, Inc of Wixom, Michigan, and Fibertec Environmental Services of Holt, Michigan, conducted analytical testing. The chain of custody, laboratory analytical methods, and detection limits are listed on the analytical reports in Attachment G.

4.2 Subsurface Conditions

The subsurface soil profile at the soil probe locations generally consisted of fill, underlain by natural sands and/or natural silty clay, underlain by natural sand.

SME encountered no staining or PID readings at the various soil probe and test pit locations on the Property.

SME encountered groundwater at depths ranging from 4 to 17 feet BG. The groundwater flow direction at the Property is unknown.

4.3 Applicable MDEQ Part 201 Criteria

For this Category "N" BEA, SME compared the analytical results to the MDEQ Part 201 Generic Residential Cleanup Criteria, updated January 23, 2006.

SME included drinking water as a potentially relevant pathway since a complete assessment of aquifer conditions has not been conducted, and domestic water wells were formerly in use in the surrounding area.

In addition, the groundwater surface water interface (GSI) pathway may be a relevant exposure pathway at the Property since the Property region includes several marshes, low-lying wet areas, and drains, and a northwest adjacent retention pond. The GSI criteria for selected metals were calculated using the MDEQ default hardness of 150 mg/L for Lower Michigan. In addition, the assumption of "groundwater protected as a drinking water source" was used in calculating the criteria.

The analytical results for the Property are presented below.

4.4 Contamination Identification and Distribution

The following tables summarize the constituents in soil and groundwater that exceeded Part 201 residential criteria judged by SME to be applicable.

Summary of Soil Analytical Results					
Constituent	CAS #	Sample ID	Location	Criteria Exceeded (µg/kg)	Analytical Result (µg/kg)
Arsenic	7440382	SP107	Southern portion of Property.	Drinking Water Protection (5,800)	6,100

Summary of Groundwater Analytical Results					
Constituent	CAS #	Sample ID	Location	Criteria Exceeded (µg/kg)	Analytical Result (µg/kg)
Trichloroethene (TCE)	79016	SP1	Western portion of Property.	Drinking Water Protection (5)	97

No SVOCs or PAHs were reported above laboratory method detection limits (MDL) for the analyzed soil and groundwater samples. Refer to Figure 2 in Attachment A for the locations of the soil probe and test pits on the Property.

4.5 Summary of Contamination Identification and Location

Arsenic and TCE concentrations were identified at levels that define the Property as a "facility." Arsenic was detected in one soil sample at the southwest corner of the Property. No arsenic was detected above the laboratory MDLs in the analyzed groundwater samples.

The detected TCE in groundwater in the west portion of the Property at SP1 appears to be related to a TCE groundwater plume. Similar analytical findings were identified off-site to the west and southwest.

The remaining parameters analyzed in soil and groundwater samples were either below the MDL or below MDEQ Part 201 residential cleanup criteria. Table 1 and Table 2 of Attachment F summarize the analytical results for soil and groundwater, respectively.

5. LIKELIHOOD OF OTHER CONTAMINATION

Based on the results of SME's Phase I ESA, Phase I ESA Update, and subsurface assessments, SME identified no on-site areas of concern other than those addressed by the subsurface assessment activities. SME selected the sampling locations based on the locations of RECs identified in SME's Phase I ESA report.

Although SME identified no on-site areas of concern other than those addressed by the subsurface assessment activities, SME cannot guarantee all potential contaminants have been identified, or that unknown contamination may exist at the Property resulting from historical activities or off-site sources. Therefore, the possibility exists that other potential contaminants

may be present at the Property. Furthermore, the extent of identified constituents at elevated levels has not been determined.

SME identified no records of USTs, ASTs, or other abandoned containers containing hazardous substances at the Property.

6. CONCLUSIONS

SME has performed this Category "N" BEA of the approximate 22-acre Property, located in Commerce Township, Oakland County, Michigan. The results of SME's subsurface assessment indicate the Property meets the criteria of a "facility", due to one concentration of arsenic in soil and one concentration of TCE in groundwater at the Property.

SME understands William Beaumont Hospital purchased the Property on October 26, 2006, and the Property will remain vacant until the design and development of a medical facility and associated parking areas. At the time of acquisition, the specific nature/use of the proposed facility, hence future hazardous substances use, had not been determined. Therefore, SME prepared this Category "N" BEA as a means of distinguishing a new release from existing contamination.

SME has performed the Baseline Environmental Assessment based upon conditions observed by SME during the completion of the October 8, 2004 Phase I ESA, Phase I ESA Update, and subsurface assessments. In the process of obtaining information in preparation of this BEA, SME followed procedures that represent current reasonable and accepted engineering and hydrogeological practices and principles, in a manner consistent with the level of care and skill ordinarily exercised by members of these professions.

7. REFERENCES

1. **Part 201 of 1994 PA 451, as amended, the Natural Resources and Environmental Protection Act, and the Part 9 and Part 10 Rules**, December 21, 2002.
2. Department of Health and Human Services - National Institute for Occupational Safety and Health, **NIOSH Pocket Guide to Chemical Hazards**, June 1997.
3. The Michigan Department of Environmental Quality, **Commonly Asked Questions about Baseline Environmental assessments and Section 7a ("Due Care") Compliance under Part 201**, June 24, 1999.
4. The Michigan Department of Environmental Quality, **Training Material for Part 201 Cleanup Criteria / Use of Criteria to Determine a Location is a "Facility"**, January 1998.
5. RRD Operational Memorandum No 1, **Part 201 and Part 213 Cleanup Criteria**, dated June 24, 2004.
6. RRD Operational Memorandum No 2, **Sampling and Analysis**, dated December 10, 2004.
7. RRD Operational Memorandum No 5, **Groundwater Surface Water Interface Criteria**, dated December 10, 2004.
8. RRD Operational Memorandum No. 11, **Criteria to Eliminate the Potable Groundwater Pathway**, August 25, 1997.
9. Soil and Materials Engineers, Inc., **Baseline Environmental Assessment Report, 31-Acre Site, Commerce Twp, MI**, October 14, 2004.

ATTACHMENT A

ATTACHMENT B

ATTACHMENT C



ATTACHMENT D

ATTACHMENT E

ATTACHMENT F



ATTACHMENT G