



ISO 9001 REGISTERED

**Detroit**  
4080 W. 11 Mile Rd  
Berkley, MI 48072  
f: 877-884-6775  
t: 248-336-9988

**Grand Rapids**  
77 Monroe Center, NW  
Suite 602  
Grand Rapids, MI 49503  
f: 877-884-6775  
t: 616-285-8857

**Lansing**  
3340 Ranger Road  
Lansing, MI 48906  
f: 877-884-6775  
t: 517-321-3331

September 2016

Mr. Peter Quackenbush  
Department of Environmental Quality  
Constitution Hall, Atrium North  
525 West Allegan Street  
Constitutional Hall, Atrium  
Lansing, Michigan 48909

**Re: Excavation Summary Report for the Targeted Excavation for Areas 5-7, 7, and 9 at the RACER Industrial Property Lansing Plant 6 Located at 401 North Verlinden, Lansing, Michigan  
MID No. 005 356 928  
PM Environmental, Inc. Project No. 01-4174-7-0001**

Dear Mr. Quackenbush:

PM Environmental (PM) is submitting this Excavation Summary Report in support of the Resource Conservation and Recovery Act (RCRA) Corrective Action at the RACER Trust Industrial Property Plant 6 located in Lansing, Michigan. PM completed targeted source mass soil excavation in Areas 5-7, 7, and 9 at Plant 6 identified in the Corrective Measures Study (CMS), submitted to the Michigan Department of Environmental Quality (MDEQ) in June, 2014 (ARCADIS, 2014) and as approved in the Targeted Excavation Work Plan for Areas 5-7, 7, and 9 at the RACER Industrial Property (June 2015).

If you have any questions regarding the information in this report, please contact us at (517) 321-3331.

Sincerely,  
**PM ENVIRONMENTAL, INC.**

Robert Hikade  
Project Scientist

Casey Armstrong  
Regional Manager – Field Services/Project Manager

Cc: Dave Favero, RACER Trust

**TABLE OF CONTENTS**

SECTION 1.0 INTRODUCTION ..... 1  
     1.1 Previous Reports ..... 1  
     1.2 Site Background ..... 1  
     1.3 Excavation Area Site Investigation and Analytical Results ..... 1  
     1.4 Geology and Hydrogeology ..... 2  
 SECTION 2.0 TARGETED EXCAVATION ACTIVITIES ..... 3  
     2.1 Pre-Excavation Site Activities ..... 3  
         2.1.1 Delineation Soil Borings ..... 3  
         2.1.2 Waste Characterization ..... 3  
         2.1.3 Locating Planned Excavations ..... 4  
         2.1.3 Underground Utility/Piping Locates ..... 4  
         2.1.4 Surface Water/Sedimentation Management ..... 5  
     2.2 Soil Excavation – Area 5-7 ..... 5  
     2.3 Soil Excavation – Area 7 ..... 7  
     2.4 Soil Excavation – Area 9 ..... 8  
 Section 3.0 Air Monitoring/Sampling ..... 9  
 Section 4.0 Conclusions and Recommendations ..... 10  
 Section 5.0 Demobilization ..... 10

**TABLES**

Table 1: Summary of Soil Analytical Results – VOCs Plant 6 Area 5-7  
 Table 1A: ARCADIS Summary of Soil Analytical Results – VOCs Plant 6 Area 5-7  
 Table 2: Summary of Soil Analytical Results – VOCs Plant 6 Area 7  
 Table 2A: ARCADIS Summary of Soil Analytical Results – VOCs Plant 6 Area 7  
 Table 3: Summary of Soil Analytical Results – VOCs Plant 6 Area 9  
 Table 3A: ARCADIS Summary of Soil Analytical Results – VOCs Plant 6 Area 9  
 Table 4: Summary of Backfill Soil Analytical Results – VOCs, SVOCs, PCBs, Metals  
 Table 5: Particle Dust Monitoring Results – Plant 6 Area 5-7  
 Table 6: Particle Dust Monitoring Results – Plant 6 Area 7  
 Table 7: Particle Dust Monitoring Results – Plant 6 Area 9

**FIGURES**

Figure 1: Site Vicinity Diagram  
 Figure 2: Generalized Diagram of the Subject Property with Surface Cover and Adjoining Properties  
 Figure 3A: Detailed Diagram of the Area 5-7 Excavation Area with Historical Sample Locations and Analytical Results.  
 Figure 3B: Detailed Diagram of the Area 5-7 Excavation Area with VSR Sample Locations and Analytical Results.  
 Figure 4A: Detailed Diagram of the Area 7 Excavation Area with Historical Sample Locations and Analytical Results.  
 Figure 4B: Detailed Diagram of the Area 7 Excavation Area with VSR Sample Locations and Analytical Results.  
 Figure 5A: Detailed Diagram of the Area 9 Excavation Area with Historical Sample Locations and Analytical Results.  
 Figure 5B: Detailed Diagram of the Area 9 Excavation Area with VSR Sample Locations and Analytical Results.

## **APPENDICES**

- Appendix A: Waste Characterization Sample Analytical Results
- Appendix B: Certified Clean Backfill Documentation
- Appendix C: Excavation Screening Logs, QA/QC Logs, and Abandonment Logs
- Appendix D: Area 5-7 – Excavation Disposal and Backfill Documentation
- Appendix E: Area 7 - Excavation Disposal and Backfill Documentation
- Appendix F: Area 9 - Excavation Disposal and Backfill Documentation

DRAFT

## **SECTION 1.0 INTRODUCTION**

PM Environmental (PM) is submitting this Excavation Summary Report in support of the Resource Conservation and Recovery Act (RCRA) Corrective Action completed at the RACER Trust Industrial Property Plant 6 located in Lansing, Michigan (Site). Excavation activities were completed in accordance with the Targeted Excavation Work Plan for Areas 5-7, 7, and 9 prepared by PM (June 2015) and approved by the Michigan Department of Environmental Quality (MDEQ) (July 2015).

### **1.1 Previous Reports**

PM reviewed the following reports pertaining to previous environmental investigations during the preparation of this Work Plan:

- Field Sampling Plan (FSP), ARCADIS 2011;
- Quality Assurance Project Plan (QAPP), ARCADIS 2011;
- RCRA Facility Investigation (RFI) Phase II Activities Summary Report, ARCADIS, April 2013;
- DRAFT Corrective Measures Study (CMS), ARCADIS, June 2014;
- Targeted Excavation Work Plan, PM, June 2015.

### **1.2 Site Background**

On June, 1 2009, General Motors Corporation (GMC) filed for Chapter 11 Protection under U.S bankruptcy code. On July 10, 2009, GMC was renamed Motors Liquidation Company (MLC) and on the same day, some of the operating assets of GMC were sold to a newly formed company "General Motors Company". General Motors Company subsequently changed its name to General Motors LLC (GM LLC) on October 16, 2009. Assets not sold to GM LLC remained the property of MLC, in its capacity as debtor-in-possession in the bankruptcy case. On March 31, 2011, the Site was transferred from MLC to the RACER. Ownership of the Site was transferred to RACER Properties LLC, a wholly owned subsidiary of RACER.

Former General Motors Lansing Plant 6 (Plant 6) is located at 401 North Verlinden Street in Lansing, Michigan and occupies approximately 72 acres of land. The Site is located in Township Four North (T. 4N), Range Two West (R. 2W), Sections 7, 17 and 18, Lansing, Ingham County, Michigan. Review of municipal records indicate that the Site is currently zoned 302 - Industrial. Refer to Figure 1 for a site vicinity diagram and Figure 2 for a generalized diagram of the subject property and adjoining properties.

The Site buildings have been demolished; the Site is unoccupied and secured with perimeter fencing and locked gates. Concrete slabs and asphalt parking lots remain in place on the northern portion of the Site. The southern portion of the Site is primarily covered with crushed concrete.

### **1.3 Excavation Area Site Investigation and Analytical Results**

Targeted excavation was identified in the Draft CMS (ARCADIS 2014) in Area 5-7, Area 7, and Area 9 where concentrations of constituents of concern (COCs) represented a soil saturation concentration (Csat), direct contact and/or potential vapor intrusion risk near the property boundary. Removal of these soils would satisfy the Site remediation objective to protect human health and the environment and reduce the potential for offsite migration of the COCs via groundwater and/or soil gas.

The primary COCs for each area consisted of elevated volatile organic compounds (VOCs) detected in soil samples. Specifically, Area 5-7 contained elevated concentrations of trichloroethene (TCE) at concentrations greater than the MDEQ Part 201 Nonresidential Soil Volatilization to Indoor Air Inhalation (SVII) Generic Cleanup Criteria (GCC); Area 7 contained xylenes in soil at concentrations greater than the Csat Screening Levels; and Area 9 contained xylenes, ethylbenzene, and toluene in soil at concentrations greater than the Csat Screening Levels (Table 1 through Table 3 and Table 1A through 3A).

In-place estimates of impacted soil volumes were calculated based upon soil borings advanced in each area by ARCADIS during the RFI (ARCADIS 2013) and subsequent delineation activities completed at the Site by PM between November 2014 and March 2015.

The maximum observed contaminant concentrations and target excavation depth within each area are as follows:

Area 5-7: VAP-A5.7-ML243 11.0-12.0': TCE - 12,000 micrograms per kilogram ( $\mu\text{g}/\text{Kg}$ )

Target excavation depth: 15.0 feet below ground surface (ft bgs)

Area 7: SB-A7-TB220 9.0-10.0': Total Xylenes - 472,000  $\mu\text{g}/\text{Kg}$

Target excavation depth: 15.0 ft bgs

Area 9: SB-A9-RP208 7.0-8.0': Total Xylenes - 913,000  $\mu\text{g}/\text{Kg}$

Ethylbenzene - 232,000  $\mu\text{g}/\text{Kg}$

Toluene - 373,000  $\mu\text{g}/\text{Kg}$

S-2 7.0-8.0' Total Xylenes - 1,309,000  $\mu\text{g}/\text{Kg}$

Target excavation depth: 15.0 ft bgs

#### **1.4 Geology and Hydrogeology**

In general, the shallow lithology at the Site consists of 5 to 10 feet of sandy fill imported to the Site during original construction activities, underlain by clay and clay/sand/silt mixtures that are interbedded with thin silt, sand, and occasional gravel seams to depth of approximately 30.0 feet bgs.

Groundwater beneath Plant 6 is encountered within multiple hydrostratigraphic units at varying depths across the Site. Previous reports document groundwater at the Site has been divided in four units: deep bedrock, deep overburden, middle overburden (approximately 30.0 to 40.0 feet bgs), and perched (approximately 5.0 to 15.0 feet bgs) groundwater units. The perched groundwater units are generally located where fill material overlies low permeability clays. Often the perched groundwater is located immediately below the ground surface. The perched groundwater unit appears to be local, discontinuous, and potentially seasonal in nature. As such, the perched groundwater unit does not appear representative of an aquifer. Soil boring logs for the delineation soil borings advanced in each excavation area are included as Appendix A within the previously submitted Targeted Excavation Work Plan (PM 2015).

## **SECTION 2.0 TARGETED EXCAVATION ACTIVITIES**

The primary COCs for each area consisted of elevated VOCs detected in soil samples. Specifically, Area 5-7 contained elevated concentrations of TCE above the Nonresidential SVIIC, Area 7 contained xylenes in soil at concentrations greater than the Csat Screening Levels and Area 9 contained xylenes, ethylbenzene, and toluene in soil at concentrations greater than the Csat Screening Levels.

The screening levels identified for each area are based on the Draft Corrective Measure Screening Matrix presented in the CMS (ARCADIS, 2014). These levels were determined based on MDEQ Risk Based Screening Levels (RBSLs), are protective of human health and the environment, and allow for clean-up objectives to be attained. The following COC and MDEQ screening criteria were utilized as the cleanup objective:

- Area 5-7 – Trichloroethene: Nonresidential SVII GCC
- Area 7 – Xylenes: Csat Screening Levels
- Area 9 – Xylenes, Ethylbenzene, and Toluene: Csat Screening Levels

Targeted excavation was selected as an interim corrective measure for Area 5-7, Area 7, and Area 9 where elevated concentrations of COCs are identified near the property boundary and are ultimately expected to become part of the final corrective measures for the Site.

Job Site Services (JSS) was contracted by RACER Trust to complete excavation activities. Excavated soils were properly characterized, manifested, transported, and disposed of at a licensed disposal facility.

### **2.1 Pre-Excavation Site Activities**

#### **2.1.1 Delineation Soil Borings**

Prior to targeted excavation activities, delineation soil borings were advanced in each area to define the horizontal and vertical extent of soil impact, determine excavation boundaries, and estimate the unit quantities for offsite disposal (Section 2.2 through 2.4). Additionally, soil samples collected during the delineation activities previously completed for each targeted excavation area were utilized as Verification of Soil Remediation (VSR) samples. Delineation soil boring locations, analytical results, and unit quantities are summarized in the previously submitted Targeted Excavation Work Plan (PM 2015).

#### **2.1.2 Waste Characterization**

Soil proposed for excavation and offsite disposal in Area 5-7, Area 7, and Area 9 were characterized using Incremental Sampling Methodology (ISM) in accordance with 324.20120c of Part 201, and Interstate Technology and Regulatory Council (ITRC) procedures. ISM is a structured composite sampling and processing protocol that reduces variability of data and provides a reasonably unbiased estimate of mean contaminant concentrations for a target volume soil being sampled. Target soil volumes are defined as decision units (DUs). ISM provides unbiased representative soil concentrations for DUs by collecting numerous increments of soil (typically 20–100 increments) that are combined, processed, and subsampled according to specific protocols.

Each proposed excavation area was assumed to be an individual DU.

The analytical results of the ISM sampling were used for decision making for each DU (Area 5-7, Area-7, and Area-9) as a whole. Each ISM sample was submitted for laboratory analysis of polychlorinated biphenyls (PCBs), Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP Semi-Volatile Organic Compounds (SVOCs), TCLP RCRA metals, flashpoint, pH, reactive cyanide, and reactive sulfide.

Non-VOC samples were submitted to PACE Analytical in Livonia, Michigan for laboratory analysis of PCBs, TCLP SVOCs and TCLP RCRA metals (i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). Pace shipped the samples to their laboratory facility in Billings Montana where ISM sample processing and analysis was performed.

TCLP VOC samples and samples for flashpoint, pH, reactive cyanide and reactive sulfide were submitted to Merit Laboratories in East Lansing, Michigan for laboratory analysis.

The results of RCRA list TCLP VOC, TCLP SVOC, and TCLP metals analytes were less than laboratory method detection limits (MDLs) and RCRA Toxicity Characteristic Regulatory Concentrations. Concentrations of PCBs were not detected above the laboratory MDLs. None of the ISM samples exhibited a flashpoint, and reactive cyanide/reactive sulfide was not detected above laboratory MDLs. The pH concentrations exhibited in the ISM samples fell within a neutral range and would not be considered corrosive.

The analytical results from ISM waste characterization sampling indicated that the soil located in Areas 5-7, 7, and 9 would be disposed of as characteristically non-hazardous soil. The Summary of Waste Characterization Sample Analytical Results Report, prepared by PM (September 2015), is included as Appendix A.

### **2.1.3 Locating Planned Excavations**

Prior to excavation, the perimeter of the proposed excavations was identified and marked with paint and construction stakes. The locations of the markers was based on Global Positioning System (GPS) coordinates utilizing a handheld Trimble Geo XH GPS unit with sub-foot accuracy and field measurements obtained during previous activities.

### **2.1.3 Underground Utility/Piping Locates**

Prior to excavation activities, public underground utility locates were performed. Although no active underground utilities were expected in the Area 5-7 and Area-9 excavation areas, any encountered utilities were to be considered active until determined otherwise.

A fiber optic underground utility line is located in the southern portion of Area 7. Appropriate precautions were executed prior to excavation activities in this area to maintain the integrity of the utility corridor. The precautions included the installation of two, 10.0-foot trench boxes to maintain the integrity of the southern excavation wall and utility corridor (Section 2.3).

#### **2.1.4 Surface Water/Sedimentation Management**

Prior to excavation activities, PM identified areas on the Site where storm water runoff and collection in the onsite or offsite storm sewer network was possible. To avoid the migration of contamination during excavation activities, two permanent bulkheads were installed on the up-gradient and downgradient sections of the storm sewer that traversed Area 9 (Section 2.4).

Prior to excavation activities, the following best management practices (BMPs) for erosion and sedimentation control were implemented at each active excavation area:

- The size of disturbed areas and stockpile areas were minimized as appropriate;
- Plastic sheeting was placed and properly anchored over impacted stockpiles;
- Berms were constructed up-gradient of open excavations and stockpiles to divert runoff away from disturbed areas;
- Anchored sediment filtration barriers (i.e. silt fencing, fiber rolls, straw bales) were installed down gradient of all disturbed excavation areas and stockpiles;
- Loaded trucks were tarped leaving the Site and loose soil was swept from trucks to prevent tracking onto haul roads;

During backfill and compaction, the following BMPs for erosion and sedimentation controls of the backfilled excavation areas were implemented and monitored:

- Final grade of the disturbed backfill areas was contoured to allow for adequate surface runoff while maintaining relatively flat gradients;
- Erosion control matting was applied on steeper slopes, as needed;
- Sediment filtration barriers were installed at the downstream perimeter of each backfilled area until stabilized.

#### **2.2 Soil Excavation – Area 5-7**

Soils in Area 5-7 exhibited concentrations of TCE greater than the MDEQ Part 201 SVII GCC. The maximum TCE impact observed in this area was encountered within VAP-A5.7-ML243 between 11.0 and 12.0 feet bgs (12,000 µg/Kg). The vertical extent of TCE impact was defined vertically to below MDLs within the same boring between 17.0 and 18.0 feet bgs. Samples collected during the delineation activities previously completed were utilized to determine excavation boundaries and as VSR samples. ARCADIS advanced eight horizontal delineation soil borings (SB-A5.7-MO243, SB-A5.7-MM243, SB-A5.7-ML241, SB-A5.7-ML242, SB-A5.7-MK243, SB-A5.7-MJ243, SB-A5.7-ML245, and SB-A5.7-ML244) laterally from VAP-A5.7-ML243 in December 2013 (Table 1A and Figure 3A) to further define the horizontal extent of TCE impacts. PM advanced 18 additional horizontal delineation soil borings (S-1 through S-18) between November 2014 and March 2015 (Table 1 and Figure 3B) to define the horizontal extent of TCE impacts, estimate likely excavation boundaries, and calculate approximate soil volumes for offsite disposal. The area of soil impact in Area-5-7 was previously paved with asphalt and concrete.

Prior to initiation of excavation activities, MW-03-01 located within the excavation area was abandoned using a low permeability bentonite slurry. Monitoring well abandonment logs are included in Appendix C. Asphalt and concrete surfaces were removed, crushed, and properly disposed. Based upon disposal manifests for Area 5-7, a total of 327 tons of asphalt/concrete was removed and disposed offsite at Crandell Brothers Trucking Company (Crandell Bros) facility located at 6600 Lansing Rd, Charlotte, Michigan.

*Excavation Summary Report for Areas 5-7, 7, and 9 at the RACER Industrial Property  
Lansing Plant 6 Located at 401 North Verlinden, Lansing, Michigan  
PM Environmental, Inc. Project No. 01-4174-7-0001; September 2016*

Excavated overburden soils removed for geotechnical reasons related to benching and/or side sloping was stockpiled in designated areas, while impacted soils from the targeted excavation area was removed and transported offsite for disposal.

Significant water infiltrated the Area 5-7 excavation due to rain and snow runoff, and various abandoned pipes and previously unknown private utility trenches which transported water into the excavation. The abandoned pipes were capped to prevent water from entering the excavation area and to prevent the migration of contamination. Water was pumped from the excavation into two 20,000-gallon holding tanks to allow for excavation activities to resume. Excavated soil that could not be loaded into trucks due to saturation was placed on 10-mil polyethylene sheeting on the ground surface and covered with 6-mil poly sheeting to prevent contact with precipitation and deter potential runoff. The sheeting was secured on all edges and the area surrounding the soil pile was bermed so as to provide positive drainage away from the stockpiled material.

The saturated soils excavated from Area 5-7 required an additive to aid in the drying process. Therefore, 85 tons of lime kiln dust was imported from Graymont Western Lime Inc. in Gulliver, Michigan. The lime kiln dust was mixed with the stockpiled soil prior to offsite disposal. Based upon disposal manifests, a total of 3,528 tons of soil was excavated from Area 5-7 and transported offsite to Venice Park Landfill in Lennon, Michigan, for proper disposal. A total of 19,151-gallons of water was recovered from Area 5-7 and transported offsite to Eagle Processing in Wyoming, Michigan, for proper disposal.

Where data gaps were documented, or in the instance that excavation boundaries changed based upon field conditions, post-excavation VSR samples were collected from the excavation sidewalls and/or excavation floor in accordance with the Site FSP, QAPP, and the 2002 MDEQ Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria guidance document (S3TM). VSR soil samples were submitted for laboratory analysis of VOCs utilizing United States Environmental Protection Agency (USEPA) Method 8260. Three additional VSR samples (S-19 through S-21) were collected during excavation activities in Area 5-7. Additionally, as part of the oversight activities, PM continuously monitored the sidewalls and floor of the excavation with a photo ionization detector (PID). Regular field screening samples were collected from the excavator bucket to document PID readings. PID readings and visual observations were recorded on site specific logs (Appendix C).

Quality Assurance/Quality Control (QA/QC) samples were collected and submitted for laboratory analysis to evaluate the validity and accuracy of analytical results. QA/QC sampling included the collection and laboratory analysis of duplicate, field blank, trip blank, matrix spike, and matrix spike duplicate samples. QA/QC samples (A-1 through A-3) were collected during excavation activities in Area 5-7. Appendix C contains the QA/QC sample logs and analytical results are summarized on Table 1.

The Area 5-7 excavation was backfilled with previously stockpiled overburden soil, and 3,178 tons of new documented clean low-permeability borrow material. Backfill procedures consisted of placing soil in 8 to 12 inch lifts and compacting in place with onsite equipment, completed to within 6.0-inches of final grade. The excavation area was restored to final grade with 202 tons of Michigan Department of Transportation (MDOT) 302 aggregate (MDOT Dense Graded Aggregate 22A), and compacted in place with onsite equipment, sloped to allow for settlement and run-off.

Refer to Appendix B for documentation of the certified clean backfill borrow material. Figure 3A and 3B depicts the excavation dimensions and sample locations on a scaled site diagram. Refer

to Table 1 for a summary of the soil analytical results and to Appendix D for copies of Area 5-7 excavation documentation including disposal manifests (i.e., for concrete, asphalt, soil, and water), and load tickets for lime kiln dust, backfill material, and surface cover material.

### **2.3 Soil Excavation – Area 7**

Soils in Area 7 exhibited concentrations of xylenes greater than the MDEQ Part 201 Csat Screening Levels. The maximum xylene impact observed in this area (Figure 4A) was encountered within SB-A7-TB220 between 9.0 and 10.0 feet bgs (472,000 µg/Kg). Due to the presence of buried concrete debris within the Area 7 source area, the vertical extent of xylenes impact was not previously defined within the source area. Samples collected during the delineation activities previously completed were utilized to determine excavation boundaries and as VSR samples. ARCADIS advanced six horizontal delineation soil borings (SB-A7-TB218, SB-A7-TB219, SB-A7-TA220, SB-A7-TB223, SB-A7-TB221, and SB-A7-TB220) laterally from SB-A7-TB220 in December 2013 (Table 2A and Figure 4A) to further define the horizontal extent of xylenes impact. PM advanced 16 horizontal/vertical delineation soil borings (S-1 through S-16) laterally from SB-A7-TB220 between November 2014 and March 2015 (Table 2 and Figure 4B) to define the horizontal extent impact of xylenes, estimate likely excavation boundaries, and calculate approximate soil volumes for offsite disposal. The area of soil impact in Area-7 was previously covered with vegetation.

Prior to initiation of excavation activities, two 10.0-foot trench boxes were constructed to maintain the integrity of the utility corridor along the south wall of the excavation. A concrete slab was located along a majority of the excavation floor and limited the vertical depth of the excavation to depths ranging between 11.0 and 12.0 feet bgs. Water that infiltrated the excavation area was pumped and stored in a 20,000-gallon holding tank.

Excavated overburden soils removed for geotechnical reasons related to benching and/or side sloping was stockpiled in designated areas, while impacted soils from the targeted excavation area was removed and transported offsite for disposal.

Based upon the disposal manifests, a total of 1,240 tons of soil was excavated from Area 7 and transported offsite to Venice Park Landfill in Lennon, Michigan, for proper disposal. A total of 1,600-gallons of water was recovered from Area 7 and transported offsite for proper disposal at Eagle Processing in Wyoming, Michigan.

Where data gaps were documented, or in the instance that excavation boundaries changed based upon field conditions, post-excavation VSR samples were collected from the excavation sidewalls and/or excavation floor in accordance with the Site FSP, QAPP, and the 2002 MDEQ S3TM guidance document. VSR soil samples were submitted for laboratory analysis of VOCs according to USEPA Method 8260. Twelve additional VSR samples (S-17 through S-28) were collected during excavation activities in Area 7. Additionally, as part of the oversight activities, PM continuously monitored the sidewalls and floor of the excavation with a PID. Regular field screening samples were collected from the excavator bucket to document PID readings. PID readings and visual observations were recorded on site specific logs (Appendix C).

QA/QC samples were collected and submitted for laboratory analysis to evaluate the validity and accuracy of analytical results. QA/QC sampling included the collection and laboratory analysis of duplicate, field blank, trip blank, matrix spike, and matrix spike duplicate samples. QA/QC samples (S-26 (MS/MSD) and A-1 through A-5) were collected during excavation activities in Area

7. Appendix C contains the QA/QC sample logs and analytical results are summarized on Table 2.

The Area 7 excavation was backfilled with previously stockpiled overburden soil and 1,094 tons of new documented clean low-permeability borrow material. Backfill procedures consisted of placing soil in 8 to 12 inch lifts and compacting in place with onsite equipment final grade. The excavation area was backfilled to original grade and restored with grass seed.

Refer to Appendix B for documentation of the certified clean backfill borrow material. Figure 4A and 4B depicts the excavation dimensions and sample locations on a scaled site diagram. Refer to Table 2 for a summary of the soil analytical results and Appendix E for copies of Area 7 excavation documentation including disposal manifests (i.e., for concrete, soil, and water), and load tickets for backfill material, and surface cover material.

## **2.4 Soil Excavation – Area 9**

Soils in Area 9 exhibited concentrations of xylenes, ethylbenzene, and toluene greater than MDEQ Part 201 Csat Screening Levels. The maximum xylene impact observed in this area (Figure 5A and 5B) was encountered within S-2 between 7.0 and 8.0 feet bgs (xylenes – 1,309,000 µg/Kg). The vertical extent of impact was defined vertically within the same boring between 14.0 and 15.0 feet bgs. Samples collected during the delineation activities previously completed were utilized to determine excavation boundaries and as VSR samples. ARCADIS advanced eight horizontal delineation soil borings (SB-A9-RR208, SB-A9-RR211, SB-A9-RR212, SB-A9-RP210, SB-A9-RQ211, SB-A9-RU210, SB-A9-RT210, and SB-A9-RT212) laterally from SB-A9-RR208 in December 2013 (Table 3A and Figure 5A) to further define the horizontal extent of impact. PM advanced 23 delineation soil borings (S-1 through S-23) between November 2014 and March 2015 (Table 3 and Figure 5B) to further define the extent of impact, estimate likely excavation boundaries, and calculate approximate soil volumes for offsite disposal. The area of soil impact in Area-9 was previously covered with a concrete building foundation, crushed concrete, and vegetation.

Prior to initiation of excavation activities, two concrete bulkheads were installed within the 36-inch storm sewer utility which traversed the excavation area. The bulkheads were installed at the up-gradient and down-gradient boundaries of the excavation to prevent migration of contamination via the storm sewer. In addition, MW-P6-SB-32, located within the excavation area was abandoned using a low permeability bentonite slurry. Monitoring well abandonment logs are included in Appendix C. Concrete surfaces were removed, crushed, and properly disposed. Based upon disposal manifests for Area 9, a total of 102 tons of concrete was removed and disposed offsite at Crandell Bros facility located at 6600 Lansing Rd, Charlotte, Michigan.

Excavated overburden soils removed for geotechnical reasons related to benching and/or side sloping was stockpiled in designated areas, while impacted soils from the targeted excavation area was removed and transported offsite for disposal.

Although concrete bulkheads were installed within the 36-inch storm sewer utility which traversed the excavation area, significant water infiltrated the Area 9 excavation. The up-gradient concrete bulkhead installed in the 36-inch storm sewer pipe failed; water from the failed bulkhead, abandoned pipes that transected the excavation area, and previously unknown private utility trenches transported water into the excavation. An additional permanent clay soil bulkhead was installed approximately 60 feet up-gradient from the excavation (Figure 5A and 5B) to prevent

water from entering the excavation. A trench was excavated perpendicular through the up-gradient storm sewer pipe and backfilled with low-permeability clay soil to the ground surface to form the plug (Figure 5A and 5B). Water was pumped from the excavation into two 20,000-gallon holding tanks to allow for excavation activities to resume.

Based upon the disposal manifests, a total of 1,725 tons of soil was excavated from Area 9 and transported offsite to Venice Park Landfill in Lennon, Michigan, for proper disposal. A total of 72,246-gallons of water was recovered from Area 9 and transported offsite for proper disposal at Eagle Processing in Wyoming, Michigan.

Where data gaps were documented, or in the instance that excavation boundaries changed based upon field conditions, post-excavation VSR samples were collected from the excavation sidewalls and/or excavation floor in accordance with the Site FSP, QAPP, and the 2002 MDEQ S3TM guidance document. VSR soil samples were submitted for laboratory analysis of VOCs utilizing USEPA Method 8260. Seven additional VSR samples (S-27 through S-33) were collected during excavation activities in Area 9. Additionally, as part of the oversight activities, PM continuously monitored the sidewalls and floor of the excavation with a PID. Regular field screening samples were collected from the excavator bucket to document PID readings. PID readings and visual observations were recorded on site specific logs (Appendix C).

QA/QC samples were collected and submitted for laboratory analysis to evaluate the validity and accuracy of analytical results. QA/QC sampling included the collection and laboratory analysis of duplicate, field blank, trip blank, matrix spike, and matrix spike duplicate samples. Appendix C contains the QA/QC sample logs and analytical results are summarized on Table 3.

The Area 9 excavation was backfilled with previously stockpiled overburden soil and 1,525 tons of new documented clean low-permeability borrow material. Backfill procedures consisted of placing soil in 8 to 12 inch lifts and compacting in place with onsite equipment, completed to within 6.0-inches of final grade. The excavation area was restored to final grade with 107 tons of MDOT 302 aggregate (MDOT Dense Graded Aggregate 22A), and compacted in place with onsite equipment, sloped to allow for settlement and run-off.

Refer to Appendix B for documentation of the certified clean backfill borrow material. Figure 5A and 5B depicts the excavation dimensions and sample locations on a scaled site diagram. Refer to Table 3 for a summary of the soil analytical results and to Appendix F for copies of Area 9 excavation documentation including disposal manifests (i.e., for concrete, soil, and water), and load tickets for backfill material, and surface cover material.

### **Section 3.0 Air Monitoring/Sampling**

In accordance with the Site-specific HASP, air monitoring stations equipped with a particulate dust monitors (PDMs) were established at each excavation site downwind of the work area to monitor for potential particulate emissions (dust) from excavation activities. Close proximity (20 yards from excavation) and distant (75-150 yards from excavation) readings were collected approximately every 60 minutes and recorded (Table 5 through Table 7). A time weighted daily average was calculated from the hourly readings to ensure concentrations were not greater than the USEPA Total Suspended Particulate (TSP) PM-10 standard ( $150\mu\text{g}/\text{m}^3$ ).

Based upon the PDM readings, TSPs did not exceed the standard  $150\mu\text{g}/\text{m}^3$  for any consecutive 60-minute readings. During excavation activities, a safety hazard of 10 parts per million (ppm)

was implemented for ambient VOCs. Elevated PID readings were not encountered in ambient air reading collected during excavation activities. As a result there was no stoppage in excavation activities due to an increase in TSP or elevated concentrations of ambient VOC vapors.

#### **Section 4.0 Conclusions and Recommendations**

The purpose of the soil excavation was to excavate and dispose of impacted soil documented above applicable MDEQ Part 201 SVII and DC GCC and the Csat Screening Levels.

Soil removal activities took place between November and January 2016. A combined total of 6,493.25 tons of impacted soil was excavated from Area 5-7, 7, and 9 at Plant 6 and transported offsite to Venice Park Landfill. A combined total of 91,397-gallons of groundwater were removed from the Site and disposed at Eagle Processing in Wyoming, Michigan.

Soil impact previously identified on the Site above the MDEQ Part 201 SVII and DC GCC in the targeted excavation areas has been excavated and properly disposed offsite. Therefore, the SVII and DC exposure pathways remain relevant but no longer applicable to human health exposure in Areas 5-7, 7, and 9 on the Site. Additionally, the concentrations of COCs identified above the Csat Screening Levels in Area 7 and 9 have been excavated and properly disposed offsite, reducing the potential for contaminants leaching to groundwater and/or contaminant migration offsite.

Verification samples collected from each excavation area (Area 5-7, 7, and 9) document soil impacted above the cleanup objective in each of the excavation areas (i.e., MDEQ Part 201 SVII and DC GCC and/or the Csat Screening Levels), has been excavated and properly disposed.

#### **Section 5.0 Demobilization**

Subsequent to targeted excavation activities, including backfill, and site restoration activities as previously summarized, equipment and personnel were demobilized from the Site. All trash and debris generated during targeted excavation activities was removed from the Site.

#### **Report Prepared By:**



Robert Hikade  
Project Scientist

#### **Report Reviewed By:**




Casey Armstrong  
Regional Manager – Field Services/Project Manager

DRAFT

## Tables

**TABLE 1**  
**SUMMARY OF SOIL ANALYTICAL RESULTS**  
**VOLATILE ORGANIC COMPOUNDS**  
**PLANT 6 - AREA 5-7, 401 NORTH VERLINDEN AVENUE, LANSING, MICHIGAN**  
**PM PROJECT #01-4174-6**

 <b>VOLATILE ORGANIC COMPOUNDS</b> (µg/Kg)		1,1-Dichloroethane	cis-1,2-Dichloroethylene	Trichloroethylene	Other VOCs	
Chemical Abstract Service Number (CAS#)		75343	156592	79016	Various	
Sample ID	Sample Date	Sample Depth (feet bgs)	VOCs			
S-1 (A5-7)	11/12/2014	11-12	<60	<60	<60	<MDL
		14-15	<60	<60	<60	<MDL
S-2 (A5-7) Area 5-7 Duplicate S-2 (A5-7) - EXCAVATED	11/12/2014	11-12	<60	300	160	<MDL
		14-15	<70	120	100	<MDL
S-3 (A5-7) - EXCAVATED	11/12/2014	11-12	<60	220	<b>10,910</b>	<MDL
		14-15	70	730	<61	<MDL
S-4 (A5-7) - EXCAVATED	11/12/2014	11-12	<60	<60	<b>4,470</b>	<MDL
		14-15	<60	<60	<60	<MDL
S-5 (A5-7) - EXCAVATED	11/12/2014	11-12	<70	<70	<70	<MDL
		14-15	<60	<60	<60	<MDL
S-6 (A5-7) - EXCAVATED	11/12/2014	11-12	<60	130	<b>9,230</b>	<MDL
		14-15	<60	210	<60	<MDL
S-7 (A5-7) - EXCAVATED	11/12/2014	11-12	<70	<70	<70	<MDL
		14-15	<70	<70	<70	<MDL
S-8 (A5-7) - EXCAVATED	11/12/2014	11-12	<60	70	<60	<MDL
		14-15	<70	<71	<70	<MDL
S-9 (A5-7) - EXCAVATED	11/12/2014	11-12	<60	540	<60	<MDL
		14-15	<60	<60	<60	<MDL
S-10 (A5-7) - EXCAVATED	11/12/2014	8-9	<70	<70	<70	<MDL
		13.5-14.5	<60	210	<b>5,260</b>	<MDL
		19-20	<80	<80	<80	<MDL
S-11 (A5-7) - EXCAVATED	11/12/2014	8.5-9.5	<70	<70	<70	<MDL
		13.5-14.5	<60	<60	<60	<MDL
		19-20	<60	<60	<60	<MDL
S-12 (A5-7)	11/12/2014	8.5-9.5	<70	<70	<70	<MDL
		13.5-14.5	<60	<60	<60	<MDL
		19-20	<60	<60	<60	<MDL
S-13 (A5-7)	11/12/2014	3-4	<70	<70	<70	<MDL
		11-12	<60	<60	<60	<MDL
		14-15	<60	<60	<60	<MDL
S-14 (A5-7) EXCAVATED	11/12/2014	19-20	<60	<60	<60	<MDL
		2-3	<60	<60	<60	<MDL
		11-12	<60	<60	<60	<MDL
S-15 (A5-7) - EXCAVATED	11/20/2014	14-15	<60	<60	<60	<MDL
		11-12	<70	<70	<70	<MDL
S-16 (A5-7) - EXCAVATED	11/20/2014	14-15	<60	780	1,020	<MDL
		11-12	<60	180	<b>7,860</b>	<MDL
S-17 (A5-7)	11/20/2014	14-15	<60	80	210	<MDL
		11-12	<70	<70	160	<MDL
S-18 (A5-7)	11/21/2014	13.5-14.5	<60	<60	<60	<MDL
A-1 (Duplicate)		19-20	<60	<60	<60	<MDL
S-19	12/18/2015	11.0-12.0	<80	<80	<80	<MDL
S-20		11.0-12.0	<60	<60	<60	<MDL
A-2 (Duplicate)	12/18/2015	14.0-15.0	<60	<60	<60	<MDL
		11.0-12.0	<70	<70	<70	<MDL
S-21	12/18/2015	11.0-12.0	<80	<80	<80	<MDL

**Cleanup Criteria Requirements for Response Activity (R 299.1 - R 299.50)**  
**Generic Soil Cleanup Criteria Tables 2 and 3: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013**  
**MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D**  
**Vapor Intrusion Screening Values, May 2013**

Residential (µg/Kg)				
Statewide Default Background Levels	NA	NA	NA	NA
Drinking Water Protection (Res DWP)	18,000	1,400	100	Various
Groundwater Surface Water Interface Protection (GSIP)	15,000	12,000	4,000 (X)	Various
Soil Volatilization to Indoor Air Inhalation (Res SVII)	2.30E+05	22,000	1,000	Various
Ambient Air Infinite Source Volatile Soil Inhalation (Res VSI)	2.10E+06	1.80E+05	11,000	Various
Ambient Air Finite VSI for 5 Meter Source Thickness	5.90E+06	4.20E+05	25,000	Various
Ambient Air Finite VSI for 2 Meter Source Thickness	1.40E+07	9.90E+05	57,000	Various
Ambient Air Particulate Soil Inhalation (Res PSI)	3.30E+10	2.30E+09	1.30E+08	Various
Direct Contact (Res DC)	2.7E+07 (C)	2.5E+06 (C)	5.0E+5 (C,DD)	Various
Nonresidential (µg/Kg)				
Drinking Water Protection (Nonres DWP)	50,000	1,400	100	Various
Soil Volatilization to Indoor Air Inhalation (Nonres SVII)	4.30E+05	41,000	<b>1,900</b>	Various
Ambient Air Infinite Source Volatile Soil Inhalation (Nonres VSI)	2.50E+06	2.10E+05	14,000	Various
Ambient Air Finite VSI for 5 Meter Source Thickness	6.00E+06	4.30E+05	25,000	Various
Ambient Air Finite VSI for 2 Meter Source Thickness	1.40E+07	1.00E+06	58,000	Various
Ambient Air Particulate Soil Inhalation (Nonres PSI)	1.50E+10	1.00E+09	5.90E+07	Various
Direct Contact (Nonres DC)	8.7E+07 (C)	8.0E+06 (C)	6.6E+05 (C,DD)	Various
Screening Levels (µg/Kg)				
Soil Saturation Concentration Screening Levels (Csat)	8.90E+05	6.40E+05	5.00E+05	Various
Residential Vapor Intrusion Soil Screening Levels (S <sub>VI-res</sub> )	440	50	50	Various
Nonresidential Vapor Intrusion Soil Screening Levels (S <sub>VI-nr</sub> )	7.300	160	50	Various

- Criterion Exceeded
- BOLD** Value Exceeds Criterion
- bgs Below Ground Surface (feet)
- 1 1,2,3-Trimethylbenzene RBSLs based on the more restrictive of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
- 2 Maximum of analyzed or calculated total lead value.
- ND Non-detected at levels above laboratory method detection limit (MDL)
- NA Not Applicable
- NL Not Listed
- NLL Not Likely to Leach
- NLV Not Likely to Volatilize
- ID Insufficient Data
- Shaded sample intervals were excavated and removed from the subject property

**TABLE 1A  
SUMMARY OF SOIL ANALYTICAL RESULTS  
VOLATILE ORGANIC COMPOUNDS  
LANSING PLANT 6 - AREA 5-7  
PM PROJECT #01-4174-6**

VOLATILE ORGANIC COMPOUNDS (µg/Kg)			Acetone	1,1-Dichloroethane	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	Toluene	Trichloroethylene	Vinyl chloride	Xylenes	Other VOCs
Chemical Abstract Service Number (CAS#)			67641	75343	156592	156605	108883	79016	75014	1330207	96128
Sample ID	Sample Date	Sample Depth (feet bgs)	VOCs								
SB-A5.7-MF238	9/14/2012	1.0-2.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MF238	9/14/2012	11.0-12.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MF238	9/14/2012	17.0-18.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MF238	9/14/2012	23.0-24.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MF238	9/14/2012	29.0-30.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MH243	9/6/2012	1.0-2.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MH243	9/6/2012	6.0-7.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MH243	9/6/2012	14.0-15.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MH243	9/6/2012	19.0-20.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MJ243 - EXCAVATED	11/21/2013	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MJ243 - EXCAVATED	11/21/2013	8.0-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MJ243 - EXCAVATED	11/21/2013	11.0-12.0	<MDL	<MDL	110	<MDL	<MDL	<b>9,740</b>	<MDL	<MDL	<MDL
SB-A5.7-MK243 - EXCAVATED	11/21/2013	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MK243 - EXCAVATED	11/21/2013	7.0-8.0	770	<MDL	<MDL	<MDL	<MDL	<b>3,440</b>	<MDL	<MDL	<MDL
SB-A5.7-MK243 & SB-A5.7-Dup2 - EXCAVATED	11/21/2013	11.0-12.0	770	<MDL	460	<MDL	<MDL	1,620	<MDL	<MDL	<MDL
SB-A5.7-ML233	9/14/2012	7.0-8.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML233	9/14/2012	13.0-14.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML233	9/14/2012	20.0-21.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML233	9/14/2012	27.0-28.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML238 - EXCAVATED	9/6/2012	1.0-2.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML238	9/6/2012	6.5-7.5	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML238	9/6/2012	14.0-15.0	<MDL	230	<MDL	<MDL	<MDL	80	170	<MDL	<MDL
SB-A5.7-ML238	9/6/2012	19.0-20.0	<MDL	1,400	800	<MDL	<MDL	130	110	<MDL	<MDL
SB-A5.7-ML241 - EXCAVATED	11/20/2013	2.0-3.0	860	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML241 - EXCAVATED	11/20/2013	7.0-8.0	<MDL	<MDL	<MDL	<MDL	<MDL	130	<MDL	<MDL	<MDL
SB-A5.7-ML241 & SB-A5.7-Dup1 - EXCAVATED	11/20/2013	11.0-12.0	<MDL	<MDL	460	<MDL	<MDL	<MDL	210	<MDL	<MDL
SB-A5.7-ML242 - EXCAVATED	11/20/2013	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML242 - EXCAVATED	11/20/2013	7.0-8.0	<MDL	<MDL	1,780	210	<MDL	<b>7,070</b>	<MDL	<MDL	<MDL
SB-A5.7-ML242 - EXCAVATED	11/20/2013	11.0-12.0	750	<MDL	<MDL	<MDL	<MDL	120	<MDL	<MDL	<MDL
SB-A5.7-ML247	9/6/2012	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML247	9/6/2012	8.0-8.5	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML247	9/6/2012	13.0-14.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML247	9/6/2012	21.0-22.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML245 - EXCAVATED	11/21/2013	3.0-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML245 - EXCAVATED	11/21/2013	7.0-8.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML245 - EXCAVATED	11/21/2013	14.0-15.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML244 & SB-A5.7-Dup3 - EXCAVATED	11/21/2013	3.0-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML244 - EXCAVATED	11/21/2013	9.0-10.0	<MDL	<MDL	<MDL	<MDL	<MDL	130	<MDL	<MDL	<MDL
SB-A5.7-ML244 - EXCAVATED	11/21/2013	14.0-15.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-ML244	11/21/2013	19.0-20.0	<MDL	<MDL	<MDL	<MDL	80	<MDL	<MDL	200	<MDL
SB-A5.7-MM243 - EXCAVATED	11/20/2013	11.0-12.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MM243 - EXCAVATED	11/20/2013	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MM243 - EXCAVATED	11/20/2013	7.0-8.0	<MDL	<MDL	<MDL	<MDL	<MDL	<b>3,060</b>	<MDL	<MDL	<MDL
SB-A5.7-MM243 - EXCAVATED	11/20/2013	11.0-12.0	<MDL	<MDL	80	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ243 - EXCAVATED	11/20/2013	4.0-5.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ243	11/20/2013	8.0-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ238	9/14/2012	5.0-6.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ238	9/14/2012	13.0-14.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ238	9/14/2012	19.0-20.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ238	9/14/2012	25.0-26.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ238	9/14/2012	29.0-30.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ243	9/14/2012	12.013.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A5.7-MQ243	9/14/2012	19.0-20.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

**Cleanup Criteria Requirements for Response Activity (R 299.1 - R 299.50)**  
**Generic Soil Cleanup Criteria Tables 2 and 3: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013**  
**MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013**

Residential (µg/Kg)										
Statewide Default Background Levels	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Drinking Water Protection (Res DWP)	1.50E+04	1.80E+04	1.40E+03	2.00E+03	1.60E+04	1.00E+02	4.00E+01	5.60E+03	Various	
Groundwater Surface Water Interface Protection (GSIP)	3.40E+04	1.50E+04	1.20E+04	30,000 (X)	5.40E+03	4,000 (X)	260 (X)	8.20E+02	Various	
Soil Volatilization to Indoor Air Inhalation (Res SVII)	2.90E+08 (C)	2.30E+05	2.20E+04	2.30E+04	3.3E+05 (C)	1.00E+03	2.70E+02	6.3E+06 (C)	Various	
Ambient Air Infinite Source Volatile Soil Inhalation (Res VSI)	1.30E+08	2.10E+06	1.80E+05	2.80E+05	2.80E+06	1.10E+04	4.20E+03	4.60E+07	Various	
Ambient Air Finite VSI for 5 Meter Source Thickness	1.30E+08	5.90E+06	4.20E+05	8.30E+05	5.10E+06	2.50E+04	3.00E+04	6.10E+07	Various	
Ambient Air Finite VSI for 2 Meter Source Thickness	1.90E+08	1.40E+07	9.90E+05	2.00E+06	1.20E+07	5.70E+04	7.30E+04	1.30E+08	Various	
Ambient Air Particulate Soil Inhalation (Res PSI)	3.90E+11	3.30E+10	2.30E+09	4.70E+09	2.70E+10	1.30E+08	3.50E+08	2.90E+11	Various	
Direct Contact (Res DC)	2.30E+07	2.7E+07 (C)	2.5E+06 (C)	3.8E+06 (C)	5.0E+07 (C)	5.0E+5 (C,DD)	3.80E+03	4.1E+08 (C)	Various	
Nonresidential (µg/Kg)										
Drinking Water Protection (Nonres DWP)	4.20E+04	5.00E+04	1.40E+03	2.00E+03	1.60E+04	1.00E+02	4.00E+01	5.60E+03	Various	
Soil Volatilization to Indoor Air Inhalation (Nonres SVII)	5.40E+08 (C)	4.30E+05	4.10E+04	4.30E+04	6.1E+05 (C)	<b>1.90E+03</b>	2.80E+03	1.2E+07 (C)	Various	
Ambient Air Infinite Source Volatile Soil Inhalation (Nonres VSI)	1.60E+08	2.50E+06	2.10E+05	3.30E+05	3.30E+06	1.40E+04	2.90E+04	5.40E+07	Various	
Ambient Air Finite VSI for 5 Meter Source Thickness	1.60E+08	6.00E+06	4.30E+05	8.40E+05	3.60E+07	2.50E+04	1.70E+05	6.50E+07	Various	
Ambient Air Finite VSI for 2 Meter Source Thickness	2.00E+08	1.40E+07	1.00E+06	2.00E+06	3.60E+07	5.80E+04	4.20E+05	1.30E+08	Various	
Ambient Air Particulate Soil Inhalation (Nonres PSI)	1.70E+11	1.50E+10	1.00E+09	2.10E+09	1.20E+10	5.90E+07	8.90E+08	1.30E+11	Various	
Direct Contact (Nonres DC)	7.30E+07	8.7E+07 (C)	8.0E+06 (C)	1.2E+07 (C)	1.6E+08 (C)	6.6E+05 (C,DD)	3.40E+04	1.0E+09 (C)	Various	
Screening Levels (µg/Kg)										
Soil Saturation Concentration Screening Levels (Csat)	1.10E+08	8.90E+05	6.40E+05	1.40E+06	2.50E+05	5.00E+05	4.90E+05	1.50E+05	Various	
Residential Vapor Intrusion Soil Screening Levels (SV-res)	3.11E+05	4.40E+02	5.00E+01	5.00E+01	1.00E+04	5.00E+01	4.00E+01	2.90E+02	Various	
Nonresidential Vapor Intrusion Soil Screening Levels (SV-nr)	5.23E+06	7.30E+03	1.60E+02	7.60E+02	1.69E+05	5.00E+01	4.00E+01	4.90E+03	Various	

- Criterion Exceeded
- BOLD** Value Exceeds Applicable Criterion
- bgs Below Ground Surface (feet)
- 1 1,2,3-Trimethylbenzene RBSLs based on the more restrictive of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
- 2 Maximum of analyzed or calculated total lead value.
- ND Non-detected at levels above laboratory method detection limit (MDL)
- NA Not Applicable
- NL Not Listed
- NLL Not Likely to Leach
- NLV Not Likely to Volatilize
- ID Insufficient Data
- Shaded sample intervals were excavated and removed from the subject property

TABLE 2  
SUMMARY OF SOIL ANALYTICAL RESULTS  
VOLATILE ORGANIC COMPOUNDS  
PLANT 6 - AREA 7, 401 NORTH VERLINDEN AVENUE, LANSING, MICHIGAN  
PM PROJECT #01-4174-6

VOLATILE ORGANIC COMPOUNDS (µg/Kg)			Benzene	n-Butylbenzene	sec-Butylbenzene	Ethylbenzene	Isopropyl benzene	2-Methylnaphthalene	Naphthalene	n-Propylbenzene	Toluene	1,2,3-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes	Other VOCs	
Chemical Abstract Service Number (CAS#)			71432	104518	135988	100414	98828	91576	91203	103651	108883	526738	95636	108678	1330207	Various	
Sample ID	Sample Date	Sample Depth (feet bgs)	VOCs														
S-1	01/27/2015	8.0-9.0	<70	NA	NA	<70	NA	NA	NA	NA	<70	NA	NA	NA	<170	NA	
S-2	01/27/2015	5.0-6.0	<60	NA	NA	170	NA	NA	NA	NA	190	NA	NA	NA	<160	NA	
S-3 - EXCAVATED	01/27/2015	7.0-8.0	<60	NA	NA	<60	NA	NA	NA	NA	<60	NA	NA	NA	<160	NA	
		11.0-12.0	<60	NA	NA	<60	NA	NA	NA	NA	<60	NA	NA	NA	<160	NA	
S-4 - EXCAVATED	01/27/2015	9.0-10.0	<60	NA	NA	<60	NA	NA	NA	NA	<60	NA	NA	NA	<160	NA	
S-5 - EXCAVATED	01/27/2015	7.0-8.0	<60	NA	NA	530	NA	NA	NA	NA	400	NA	NA	NA	910	NA	
S-6 - EXCAVATED	01/27/2015	7.0-8.0	<60	NA	NA	220	NA	NA	NA	NA	<60	NA	NA	NA	1,030	NA	
S-7	01/27/2015	8.0-9.0	<50	NA	NA	<50	NA	NA	NA	NA	<50	NA	NA	NA	<150	NA	
A-2 (Duplicate)			<50	NA	NA	<50	NA	NA	NA	NA	<50	NA	NA	NA	<150	NA	
S-8 - EXCAVATED	01/27/2015	8.0-9.0	<60	NA	NA	<60	NA	NA	NA	NA	<60	NA	NA	NA	<160	NA	
S-9 - EXCAVATED	03/25/2015	8.0-9.0	<700	21,800	1,900	7,700	14,000	3,000	63,000	35,300	13,900	21,400	74,800	33,700	50,000	<MDL	
A-3 (Duplicate)			<600	22,000	1,900	5,500	13,000	2,000	45,000	34,100	5,200	18,800	67,500	30,400	31,300	<MDL	
S-10	03/25/2015	14.0-15.0	<70	<70	<70	<70	<300	<100	<300	<70	<70	<70	<70	<70	<170	<MDL	
		9.5-10.5	<600	3,300	2,900	<600	3,000	<1,000	<3,000	7,300	<600	<600	<600	<600	<1,600	<MDL	
S-11	03/25/2015	14.0-15.0	<70	<70	<70	<70	<400	<100	<400	<70	<70	<70	<70	<70	<170	<MDL	
		14.0-15.0	<60	<60	<60	<60	<300	<100	<300	<60	<60	<60	<60	<60	<160	<MDL	
S-13	03/25/2015	14.0-15.0	<200	4,500	2,800	<200	6,000	1,500	5,000	14,300	<200	300	<200	<200	500	<MDL	
		9.5-10.5	<70	<70	<70	<70	<300	<100	<300	<70	<70	<70	<70	<70	<170	<MDL	
S-14	03/25/2015	14.0-15.0	<60	120	90	<60	<300	<100	<300	<60	<60	<60	<60	<60	<160	<MDL	
		12.0-13.0	<70	<70	<70	<70	<400	<100	<400	<70	<70	<70	<70	<70	<170	<MDL	
S-15	03/25/2015	14.0-15.0	<60	<60	<60	<60	<300	<100	<300	<60	<60	<60	<60	<60	<160	<MDL	
		9.0-10.0	<80	<80	<80	<80	<400	<200	<400	<80	<80	<80	<80	<80	<280	<MDL	
S-16	03/25/2015	14.0-15.0	<60	<60	<60	<60	<300	<100	<300	<60	<60	<60	<60	<60	<160	<MDL	
A-4 (Duplicate)			<70	<70	<70	<70	<400	<100	<400	<70	<70	<70	<70	<70	<170	<MDL	
S-17	12/1/2015	8.0-9.0	<80	<80	<80	<80	<400	<400	<400	<80	<80	<80	<80	<80	<280	<MDL	
S-18	12/1/2015	7.0-8.0	<60	<60	<60	<60	<300	<300	<300	<60	<60	<60	<60	<60	<160	<MDL	
S-19	12/03/2015	7.0-8.0	<60	220	<60	220	<300	<300	1,300	580	<60	<60	160	500	110	<160	<MDL
S-20 EXCAVATED	12/03/2015	11.0-12.0	<80	<80	<80	<80	<400	<400	<400	<80	<80	<80	<80	<80	<280	<MDL	
A-2 (Duplicate)			<80	<80	<80	<80	<400	<400	<400	<80	<80	<80	<80	<80	<280	<MDL	
S-21	12/03/2015	7.0-8.0	<80	300	<80	<80	<400	<400	<400	<80	<80	<80	90	<80	<280	<MDL	
S-22	12/03/2015	8.0-9.0	<300	<300	<300	<300	<1,000	<1,000	<1,000	<300	<300	<300	<300	<300	<800	<MDL	
S-23 EXCAVATED	12/03/2015	10.0-11.0	<90	<90	<90	<90	<500	<500	<500	<90	<90	<90	<90	<90	<290	<MDL	
S-24 - EXCAVATED	12/04/2015	7.0-8.0	<90	<90	<90	<90	<400	<400	<400	<90	<90	<90	<90	<90	<290	<MDL	
S-25	12/04/2015	8.0-9.0	<70	<70	<70	<70	<400	<400	<400	<70	<70	<70	<70	<70	<170	<MDL	
S-26	12/04/2015	8.0-9.0	<70	<70	<70	<70	<300	<300	<300	<70	<70	<70	<70	<70	<170	<MDL	
S-27	12/04/2015	8.0-9.0	<60	<60	<60	<60	<300	<300	<300	<60	<60	<60	<60	<60	<160	<MDL	
A-4 (Duplicate)			<60	<60	<60	<60	<300	<300	<300	70	150	<60	<60	<60	<160	<MDL	
S-28 - EXCAVATED	12/04/2015	11.0-12.0	<70	<70	<70	<70	<400	<400	<400	<70	<70	<70	<70	<70	<170	<MDL	
S-1 (Backfill)	11/30/2015	NA	<60	<60	<60	<60	<300	<100	<300	<60	<60	<60	<60	<60	<160	<MDL	
S-2 (Backfill)	11/30/2015	NA	<60	<60	<60	<60	<300	<100	<300	<60	<60	<60	<60	<60	<160	<MDL	
S-3 (Backfill)	11/30/2015	NA	<60	<60	<60	<60	<300	<100	<300	<60	<60	<60	<60	<60	<160	<MDL	
S-4 (Backfill)	12/3/2015	NA	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	
S-5 (Backfill)	12/3/2015	NA	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	

Generic Soil Cleanup Criteria Tables 2 and 3: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013  
MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013

Residential (µg/Kg)																
Statewide Default Background Levels	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Drinking Water Protection (Res DWP)	100	1,600	1,600	1,500	91,000	57,000	35,000	1,600	16,000	1,800	2,100	1,800	5,600	Various		
Groundwater Surface Water Interface Protection (GSIIP)	4,000 (X)	ID	ID	360	3,200	4,200	730	ID	5,400	570	570	1,100	820	Various		
Soil Volatilization to Indoor Air Inhalation (Res SVII)	1,600	ID	ID	87,000	4.0E+05 (C)	2.70E+06	2.50E+05	ID	3.3E+05 (C)	2.8E+06 (C)	4.3E+06 (C)	2.6E+06 (C)	6.9E+06 (C)	Various		
Ambient Air Infinite Source Volatile Soil Inhalation (Res VSI)	13,000	ID	ID	7.20E+05	1.70E+06	1.50E+06	3.00E+05	ID	2.80E+06	1.60E+07	2.10E+07	1.60E+07	4.60E+07	Various		
Ambient Air Finite VSI for 5 Meter Source Thickness	34,000	ID	ID	1.00E+06	1.70E+06	1.50E+06	3.00E+05	ID	5.10E+06	3.80E+08	5.00E+08	3.80E+08	6.10E+07	Various		
Ambient Air Finite VSI for 2 Meter Source Thickness	79,000	ID	ID	2.20E+06	2.80E+06	1.50E+06	3.00E+05	ID	1.20E+07	3.80E+08	5.00E+08	3.80E+08	1.30E+08	Various		
Ambient Air Particulate Soil Inhalation (Res PSI)	3.80E+08	2.00E+09	4.00E+08	1.00E+10	5.80E+09	6.70E+08	2.00E+08	1.30E+09	2.70E+10	8.20E+10	8.20E+10	8.20E+10	2.90E+11	Various		
Direct Contact (Res DC)	1.80E+05	2.50E+06	2.50E+06	2.2E+07 (C)	2.5E+07 (C)	8.10E+06	1.60E+07	2.50E+06	5.0E+07 (C)	3.2E+07 (C)	3.2E+07 (C)	3.2E+07 (C)	4.1E+08 (C)	Various		
Non-Residential (µg/Kg)																
Drinking Water Protection (Nonres DWP)	100	4,600	4,600	1,500	2.60E+05	1.70E+05	1.00E+05	4,600	16,000	1,800	2,100	1,800	5,600	Various		
Soil Volatilization to Indoor Air Inhalation (Nonres SVII)	8,400	ID	ID	4.6E+05 (C)	7.3E+05 (C)	4.90E+06	4.70E+05	ID	6.1E+05 (C)	4.8E+06 (C)	8.0E+06 (C)	4.8E+06 (C)	1.2E+07 (C)	Various		
Ambient Air Infinite Source Volatile Soil Inhalation (Nonres VSI)	45,000	ID	ID	2.40E+06	2.00E+06	1.80E+06	3.50E+05	ID	3.30E+06	1.90E+07	2.50E+07	1.90E+07	5.40E+07	Various		
Ambient Air Finite VSI for 5 Meter Source Thickness	99,000	ID	ID	3.10E+06	2.00E+06	1.80E+06	3.50E+05	ID	3.60E+07	4.60E+08	6.00E+08	4.60E+08	6.50E+07	Various		
Ambient Air Finite VSI for 2 Meter Source Thickness	2.30E+05	ID	ID	6.50E+06	3.00E+06	1.80E+06	3.50E+05	ID	3.60E+07	4.60E+08	6.00E+08	4.60E+08	1.30E+08	Various		
Ambient Air Particulate Soil Inhalation (Nonres PSI)	4.70E+08	ID	ID	1.30E+10	2.60E+09	2.90E+08	8.80E+07	5.90E+08	1.20E+10	3.60E+10	3.60E+10	3.60E+10	1.30E+11	Various		
Direct Contact (Nonres DC)	8.40E+05 (C)	8.00E+06	8.00E+06	7.1E+07 (C)	8.0E+07 (C)	2.60E+07	5.20E+07	8.00E+06	1.6E+08 (C)	1.0E+08 (C)	1.0E+08 (C)	1.0E+08 (C)	1.0E+09 (C)	Various		
Screening Levels (µg/Kg)																
Soil Saturation Concentration Screening Levels (Csat)	4.00E+05	1.00E+07	1.00E+07	1.40E+05	3.90E+05	NA	NA	1.00E+07	2.50E+05	94,000	1.10E+05	94,000	1.50E+05	Various		
Residential Vapor Intrusion Soil Screening Levels (S <sub>VI,Res</sub> )	50	450	50	200	250	7,500	440	140	10,900	3,200	2,200	1,700	290	Various		
Nonresidential Vapor Intrusion Soil Screening Levels (S <sub>VI,Non</sub> )	84.5	7,600	740	4,000	300	1,26E+05	8,900	2,400	1.69E+05	53,000	37,000	28,000	4,900	Various		

- Criterion Exceeded
- BOLD Value Exceeds Criterion
- bgs Below Ground Surface (feet)
- 1 1,2,3-Trimethylbenzene RBSLs based on the more restrictive of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
- 2 Maximum of analyzed or calculated total lead value.
- ND Non-detected at levels above laboratory method detection limit (MDL)
- NA Not Applicable
- NL Not Listed
- NLL Not Likely to

**TABLE 2A  
SUMMARY OF SOIL ANALYTICAL RESULTS  
VOLATILE ORGANIC COMPOUNDS  
LANSING PLANT 6 - AREA 7  
PM PROJECT #01-4174-6**

VOLATILE ORGANIC COMPOUNDS (µg/Kg)			Cyclohexane	Dichlorodifluoromethane	Ethylbenzene	Isopropyl benzene	Methyl Acetate	Methyl cyclohexane	Toluene	Xylenes	Other VOCs
Chemical Abstract Service Number (CAS#)			110827	75718	100414	98828	79209	108872	108883	1330207	Various
Sample ID	Sample Date	Sample Depth (feet bgs)	VOCs								
P6-SB-42	8/4/2011	1.0-2.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
P6-SB-42	8/4/2011	6.0-7.0	<MDL	<MDL	250	570	<MDL	240	370	1,740	<MDL
SB-A7-TA220 - EXCAVATED	12/17/2013	3.5-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TA220 - EXCAVATED	12/17/2013	8.5-9.0	7,000	<MDL	75,000	146,000	<MDL	240,000	<MDL	373,000	<MDL
SB-A7-TB218	12/17/2013	3.5-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB218	12/17/2013	8.5-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB218	12/17/2013	10.0-11.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB218	12/17/2013	13.5-14.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB219 - EXCAVATED	12/17/2013	3.5-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB219 - EXCAVATED	12/17/2013	8.5-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB219	12/17/2013	13.5-14.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB220 - EXCAVATED	9/25/2012	4.0-5.0	<MDL	<MDL	<MDL	<MDL	730	<MDL	<MDL	<MDL	<MDL
SB-A7-TB220 - EXCAVATED	9/25/2012	9.0-10.0	<MDL	<MDL	64,000	83,000	<MDL	270,000	37,000	472,000	<MDL
SB-A7-TB220 - EXCAVATED	12/17/2013	3.0-5.0	<MDL	<MDL	880	1,970	<MDL	2,980	100	840	<MDL
SB-A7-TB220 - EXCAVATED	12/17/2013	5.0-7.0	<MDL	<MDL	70	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB221 - EXCAVATED	12/17/2013	3.5-5.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB221 - EXCAVATED	12/17/2013	10.0-11.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB223 - EXCAVATED	12/17/2013	3.5-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB223 - EXCAVATED	12/17/2013	8.5-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TB223 - EXCAVATED	12/17/2013	11.5-12.0	<MDL	<MDL	150	190	<MDL	<MDL	70	200	<MDL
SB-A7-TD212	11/29/2012	8.0-8.5	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TD212	11/29/2012	10.0-10.5	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TD220	11/6/2012	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TD220	11/6/2012	8.0-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TD220	11/6/2012	14.0-15.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-TD220	11/6/2012	19.0-20.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-SZ212	6/4/2012	1.0-2.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-SZ212	6/4/2012	7.0-8.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-SZ212	6/4/2012	13.0-14.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-SZ212	6/4/2012	19.0-20.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-SZ217	6/4/2012	1.0-2.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-SZ217	6/4/2012	4.0-5.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-SZ217	6/4/2012	12.0-13.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A7-SZ217	6/4/2012	18.0-19.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

**Cleanup Criteria Requirements for Response Activity (R 299.1 - R 299.50)**  
**Generic Soil Cleanup Criteria Tables 2 and 3: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013**  
**MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013**

Residential (µg/Kg)											
Statewide Default Background Levels	NL	NA	NA	NA	NL	NL	NA	NA	NA	NA	NA
Drinking Water Protection (Res DWP)	NL	9.50E+04	1.50E+03	9.10E+04	NL	NL	1.60E+04	5.60E+03	Various		
Groundwater Surface Water Interface Protection (GSIP)	NL	ID	3.60E+02	3.20E+03	NL	NL	5.40E+03	8.20E+02	Various		
Soil Volatilization to Indoor Air Inhalation (Res SVII)	NL	9.00E+05	8.70E+04	4.0E+05 (C)	NL	NL	3.3E+05 (C)	6.3E+06 (C)	Various		
Ambient Air Infinite Source Volatile Soil Inhalation (Res VSI)	NL	5.30E+07	7.20E+05	1.70E+06	NL	NL	2.80E+06	4.60E+07	Various		
Ambient Air Finite VSI for 5 Meter Source Thickness	NL	5.50E+08	1.00E+06	1.70E+06	NL	NL	5.10E+06	6.10E+07	Various		
Ambient Air Finite VSI for 2 Meter Source Thickness	NL	1.40E+09	2.20E+06	2.80E+06	NL	NL	1.20E+07	1.30E+08	Various		
Ambient Air Particulate Soil Inhalation (Res PSI)	NL	3.30E+12	1.00E+10	5.80E+09	NL	NL	2.70E+10	2.90E+11	Various		
Direct Contact (Res DC)	NL	5.2E+07 (C)	2.2E+07 (C)	2.5E+07 (C)	NL	NL	5.0E+07 (C)	4.1E+08 (C)	Various		
Nonresidential (µg/Kg)											
Drinking Water Protection (Nonres DWP)	NL	2.70E+05	1.50E+03	2.60E+05	NL	NL	1.60E+04	5.60E+03	Various		
Soil Volatilization to Indoor Air Inhalation (Nonres SVII)	NL	1.70E+06	4.6E+05 (C)	7.3E+05 (C)	NL	NL	6.1E+05 (C)	1.2E+07 (C)	Various		
Ambient Air Infinite Source Volatile Soil Inhalation (Nonres VSI)	NL	6.30E+07	2.40E+06	2.00E+06	NL	NL	3.30E+06	5.40E+07	Various		
Ambient Air Finite VSI for 5 Meter Source Thickness	NL	5.50E+08	3.10E+06	2.00E+06	NL	NL	3.60E+07	6.50E+07	Various		
Ambient Air Finite VSI for 2 Meter Source Thickness	NL	1.40E+09	6.50E+06	3.00E+06	NL	NL	3.60E+07	1.30E+08	Various		
Ambient Air Particulate Soil Inhalation (Nonres PSI)	NL	1.50E+12	1.30E+10	2.60E+09	NL	NL	1.20E+10	1.30E+11	Various		
Direct Contact (Nonres DC)	NL	1.7E+08 (C)	7.1E+07 (C)	8.0E+07 (C)	NL	NL	1.6E+08 (C)	1.0E+09 (C)	Various		
Screening Levels (µg/Kg)											
Soil Saturation Concentration Screening Levels (Csat)	NL	1.00E+06	1.40E+05	3.90E+05	NL	NL	2.50E+05	1.50E+05	Various		
Residential Vapor Intrusion Soil Screening Levels (S <sub>V1-res</sub> )	NL	4.10E+03	2.00E+02	2.50E+02	NL	NL	1.00E+04	2.90E+02	Various		
Nonresidential Vapor Intrusion Soil Screening Levels (S <sub>V1-nr</sub> )	NL	6.80E+04	4.00E+03	3.00E+02	NL	NL	1.69E+05	4.90E+03	Various		

Screening Level Exceeded

**BOLD** Value Exceeds Criterion

bgs Below Ground Surface (feet)

1 1,2,3-Trimethylbenzene RBSLs based on the more restrictive of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.

2 Maximum of analyzed or calculated total lead value.

ND Non-detected at levels above laboratory method detection limit (MDL)

NA Not Applicable

NL Not Listed

NLL Not Likely to Leach

NLV Not Likely to Volatilize

ID Insufficient Data

Shaded sample intervals were excavated and removed from the subject property

TABLE 3  
SUMMARY OF SOIL ANALYTICAL RESULTS  
VOLATILE ORGANIC COMPOUNDS  
PLANT 6 - AREA 9, 401 NORTH VERLINDEN AVENUE, LANSING, MICHIGAN  
PM PROJECT #01-4174-6

VOLATILE ORGANIC COMPOUNDS (µg/Kg)			Acetone	n-Butylbenzene	Ethylbenzene	Isopropylbenzene	4-Methyl-2-pentanone (MIBK)	Naphthalene	n-Propylbenzene	Tetrachloroethylene	Toluene	1,2,3-Trimethylbenzene*	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes	Other VOCs
Chemical Abstract Service Number (CAS#)			67641	104518	100414	98828	108101	91203	103651	127184	108883	526738	95636	108678	1330207	Various
Sample ID	Sample Date	Sample Depth (feet bgs)	VOCs													
S-1 (A9) - EXCAVATED	11/13/2014	12-13	<13000	<MDL	125,000	4,000	<13000	<MDL	<MDL	<1000	<1000	<MDL	<MDL	<MDL	487,000	<MDL
		14-15	<590	<MDL	250	<60	<590	<MDL	<MDL	<60	<60	<MDL	<MDL	<MDL	1,200	<MDL
S-2 (A9) - EXCAVATED A9 (Duplicate) S-2 (A9)	11/13/2014	7-8	652,000	<MDL	107,000	<60	158,000	<MDL	<MDL	<60	<60	<MDL	<MDL	<MDL	523,000	<MDL
		14-15	592,000	<MDL	295,000	<6000	196,000	<MDL	<MDL	<6000	<6000	<MDL	<MDL	<MDL	1,309,000	<MDL
S-4 (A9) - EXCAVATED S-4 (A9) (Duplicate)	11/13/2014	7-8	<14,000	<MDL	97,000	4,000	28,000	<MDL	<MDL	2,000	<1000	<MDL	<MDL	<MDL	429,000	<MDL
		14-15	<610	<MDL	120	<60	40,650	<MDL	<MDL	<60	<60	<MDL	<MDL	<MDL	600	<MDL
S-5 (A9)	11/13/2014	14-15	<630	<MDL	<600	<600	37,400	<MDL	<MDL	<600	<600	<MDL	<MDL	<MDL	400	<MDL
		10-11	<6700	<MDL	9,800	11,500	<6,700	<MDL	<MDL	<700	800	<MDL	<MDL	<MDL	84,500	<MDL
S-6 (A9) - EXCAVATED	11/20/2014	14-15	<610	<MDL	120	490	<610	<MDL	<MDL	<60	<60	<MDL	<MDL	<MDL	<160	<MDL
		12-13	<6,500	<MDL	4,400	3,500	<6,500	<MDL	<MDL	<600	<600	<MDL	<MDL	<MDL	7,000	<MDL
S-7 (A9) - EXCAVATED	11/20/2014	14-15	<790	<MDL	<80	660	<790	<MDL	<MDL	<80	<80	<MDL	<MDL	<MDL	200	<MDL
		12-13	<6,900	<MDL	6,700	<700	<6,900	<MDL	<MDL	<700	<700	<MDL	<MDL	<MDL	76,000	<MDL
S-8 (A9) - EXCAVATED	11/20/2014	14-15	<650	<MDL	<60	<60	<650	<MDL	<MDL	<60	<60	<MDL	<MDL	<MDL	200	<MDL
		7-8	<730	<MDL	<70	<70	<730	<MDL	<MDL	<70	<70	<MDL	<MDL	<MDL	<170	<MDL
S-9 (A9) A2 (Duplicate)	11/20/2014	14-15	<640	<MDL	<60	<60	<640	<MDL	<MDL	<60	<60	<MDL	<MDL	<MDL	<160	<MDL
		7-8	<700	<MDL	<70	<70	<700	<MDL	<MDL	170	<70	<MDL	<MDL	<MDL	<170	<MDL
S-11 (A9)	11/21/2014	14-15	<720	<MDL	<70	<70	<720	<MDL	<MDL	<70	<70	<MDL	<MDL	<MDL	<170	<MDL
		7-8	<670	<MDL	1,590	<70	<670	<MDL	<MDL	<70	<70	<MDL	<MDL	<MDL	14,480	<MDL
S-12 (A9) - EXCAVATED	11/21/2014	14-15	<610	<MDL	<60	<60	<610	<MDL	<MDL	<60	<60	<MDL	<MDL	<MDL	200	<MDL
		12-13	<31,000	<MDL	102,000	78,000	<31,000	<MDL	<MDL	<3,000	10,000	<MDL	<MDL	<MDL	549,000	<MDL
S-13 (A9) - EXCAVATED	11/21/2014	14-15	<6,000	<MDL	10,900	700	<6,000	<MDL	<MDL	<600	3,900	<MDL	<MDL	<MDL	55,400	<MDL
		19.0-20.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-14R	03/23/2015	6-7	<34,000	<MDL	50,000	32,000	<34,000	<MDL	<MDL	<3,000	8,000	<MDL	<MDL	<MDL	296,000	<MDL
		14-15	<570	<MDL	60	<60	<570	<MDL	<MDL	<60	<60	<MDL	<MDL	<MDL	390	<MDL
S-15 (A9) - EXCAVATED	11/21/2014	7.0-8.0	<1,000	<70	<70	<300	<3,000	<300	<70	110	<70	<70	<70	<70	<170	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-16	03/23/2015	7.0-8.0	<1,000	<70	<70	<300	<3,000	<300	<70	110	<70	<70	<70	<70	<170	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-17	03/23/2015	7.0-8.0	<1,000	<70	<70	<300	<3,000	<300	<70	110	<70	<70	<70	<70	<170	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-18	03/23/2015	12.0-13.0	<1,000	<70	<70	<400	<4,000	<400	<70	<70	<70	<70	<70	<70	<170	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-19	03/23/2015	19.0-20.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
		24.0-25.0	<1,000	<70	<70	<300	<3,000	<300	<70	<70	<70	<70	190	90	<170	<MDL
S-20	03/23/2015	7.0-8.0	<1,000	300	760	1,300	<3,000	1,000	2,960	<70	<70	1,470	7,200	3,170	730	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-21	03/24/2015	12.0-13.0	<1,000	<70	<70	<300	<3,000	<300	<70	<70	<70	<70	<70	<70	<170	<MDL
		12.0-13.0	<1,000	<70	<70	<300	<3,000	<300	<70	<70	<70	<70	<70	<70	<170	<MDL
S-22	03/24/2015	12.0-13.0	<1,000	<70	<70	<300	<3,000	<300	<70	<70	<70	<70	<70	<70	<170	<MDL
		12.0-13.0	<1,000	<70	<70	<300	<3,000	<300	<70	<70	<70	<70	<70	<70	<170	<MDL
S-24	12/8/2015	7.0-8.0	<1,000	<70	1,940	<400	<4,000	<400	160	<70	160	650	510	10,750	<MDL	
		12.0-13.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-25	12/8/2015	7.0-8.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
		12.0-13.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-26	12/9/2015	7.0-8.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
		12.0-13.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-27	1/6/2016	9.0-10.0	<1,000	90	210	<300	<3,000	<300	270	<60	<60	340	1,480	570	1,440	<MDL
		6.0-7.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-28	1/6/2016	7.0-8.0	<1,000	<60	<60	<300	<3,000	<300	<70	<70	<70	<70	<70	<70	<170	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-29 A-2 (Duplicate)	1/6/2016	7.0-8.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-30 A-3 (Duplicate)	1/6/2016	7.0-8.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-31	1/6/2016	7.0-8.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
		14.0-15.0	<1,000	<60	<60	<300	<3,000	<300	<60	<60	<60	<60	<60	<60	<160	<MDL
S-32	1/6/2016	7.0-8.0	<1,000	<60	970	<300	<3,000	<300	<60	<60	<60	70	300	60	4,950	<MDL
		14.0-15.0	<1,000	<60	4,200	1,800	<3,000	800	3,230	<60	1,290	3,530	11,120	5,200	22,320	<MDL

Cleanup Criteria Requirements for Response Activity (R 299.1 - R 299.50)  
Generic Soil Cleanup Criteria Tables 2 and 3: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013  
MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013

Residential (µg/Kg)																
Statewide Default Background Levels	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Drinking Water Protection (Res DWP)	15,000	1,600	1,500	91,000	36,000	35,000	1,600	100	16,000	1,800	2,100	1,800	1,800	5,600	Various	
Groundwater Surface Water Interface Protection (GSIP)	34,000	ID	360	3,200	ID	730	ID	1,200 (X)	5,400	570	570	1,100	820	Various		
Soil Volatilization to Indoor Air Inhalation (Res SVII)	2.90E+08 (C)	ID	87,000	4.0E+05 (C)	3.7E+07 (C)	2.50E+05	ID	11,000	3.3E+05 (C)	2.6E+06 (C)	4.3E+06 (C)	2.6E+06 (C)	6.3E+06 (C)	Various		
Ambient Air Infinite Source Volatile Soil Inhalation (Res VSI)	1.30E+08	ID	7.20E+05	1.70E+06	4.50E+07	3.00E+05	ID	1.70E+05	2.80							


TABLE 3A  
SUMMARY OF SOIL ANALYTICAL RESULTS  
VOLATILE ORGANIC COMPOUNDS  
LANSING PLANT 6; AREA 9  
PM PROJECT # 01-4174-6

VOLATILE ORGANIC COMPOUNDS (µg/Kg)			Acetone	Cyclohexane	Ethylbenzene	Isopropylbenzene	Methyl Acetate	Methyl Cyclohexane	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	Naphthalene	Tetrachloroethylene	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Toluene	Xylenes	Other VOCs
Chemical Abstract Service Number (CAS#)			67641	110827	100414	98828	79209	108872	78933	108101	91203	127184	71556	95636	108678	108883	1330207	Various
Sample ID	Sample Date	Sample Depth (feet bgs)	VOCs															
PE-SB-30	8/9/2011	4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
PE-SB-30	8/9/2011	9.0-10.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
PE-SB-31	8/9/2011	3.5-4.5	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
PE-SB-31	8/9/2011	9.0-10.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
PE-SB-41 - EXCAVATED	8/8/2011	4.0-5.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	2,980	<MDL
PE-SB-41 - EXCAVATED	8/8/2011	8.0-9.0	<MDL	4.810	<MDL	5.770	<MDL	750	2,580	50,000	<MDL	510	<MDL	<MDL	<MDL	37,000	480,000	<MDL
PE-SB-41	8/8/2011	25.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-R0207 - EXCAVATED	5/31/2012	1.0-2.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	89	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-R0207 - EXCAVATED	5/31/2012	4.0-5.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	77	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-R0207 - EXCAVATED	5/31/2012	9.0-10.0	<MDL	<MDL	7,200	1,500	<MDL	<MDL	<MDL	<MDL	<MDL	330	<MDL	<MDL	14,000	5,800	59 J	49,000
SB-A9-R0207	5/31/2012	15.0-16.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP205	5/30/2012	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	7,800	60	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP205	5/30/2012	5.0-6.0	<MDL	<MDL	<MDL	<MDL	<MDL	33 J	<MDL	<MDL	180	210	<MDL	<MDL	<MDL	37 J	24 J	<MDL
SB-A9-RP205	5/30/2012	11.0-12.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP205	5/30/2012	17.0-18.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP210	12/22/2013	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	80	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP210	12/22/2013	8.0-9.0	<MDL	<MDL	1,930	210	<MDL	<MDL	<MDL	<MDL	130	<MDL	<MDL	<MDL	<MDL	90	4,200	<MDL
SB-A9-RP210	12/22/2013	15.0-16.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP213	5/31/2012	0.0-1.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP213	5/31/2012	4.0-5.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP213	5/31/2012	10.0-11.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RP213	5/31/2012	16.0-17.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RQ211 - EXCAVATED	12/22/2013	2.0-3.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RQ211 - EXCAVATED	12/22/2013	8.0-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RQ211 - EXCAVATED	12/22/2013	11.5-12.5	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	1,400	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RR208 - EXCAVATED	12/22/2013	3.0-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	350	<MDL	<MDL	<MDL	<MDL	130	<MDL
SB-A9-RR208 & SB-A9-DJP4 - EXCAVATED	12/22/2013	7.0-8.0	<MDL	<MDL	232,000	10,000	<MDL	6,000	<MDL	58,000	<MDL	7,000	<MDL	<MDL	<MDL	373,000	913,000	<MDL
SB-A9-RR208 - EXCAVATED	12/22/2013	11.0-12.0	<MDL	<MDL	225,000	10,000	<MDL	5,000	<MDL	52,000	<MDL	6,000	<MDL	<MDL	<MDL	355,000	894,000	<MDL
SB-A9-RR208	12/22/2013	12.0-13.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RR212	12/22/2013	3.0-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RR212	12/22/2013	8.0-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RR212	12/22/2013	12.0-13.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RR211 - EXCAVATED	12/22/2013	3.5-4.5	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RR211 & SB-A9-DJP5 - EXCAVATED	12/22/2013	8.0-9.0	<MDL	100	180	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	18,720
SB-A9-RR211 - EXCAVATED	12/22/2013	12.0-13.0	<MDL	90	10,270	170	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	21,000
SB-A9-RT205	5/30/2012	1.0-2.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RT205	5/30/2012	6.0-7.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RT205	5/30/2012	19.0-20.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RT210 - EXCAVATED	12/22/2013	4.0-5.0	<MDL	<MDL	90	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	600	<MDL
SB-A9-RT212 - EXCAVATED	12/22/2013	3.0-4.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RT212	12/22/2013	8.0-9.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RT212	12/22/2013	12.0-13.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RU210	12/22/2013	5.0-6.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RU210	12/22/2013	4.0-5.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RV212	5/31/2012	0.0-1.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RV212	5/31/2012	5.0-6.0	2,100	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	25 J	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RV212	5/31/2012	12.0-13.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
SB-A9-RV212	5/31/2012	18.0-19.0	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

Cleanup Criteria Requirements for Response Activity (R 299.1 - R 299.50)  
Generic Soil Cleanup Tables 2 and 3. Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013  
MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013

Residential (µg/Kg)																		
Statewide Default Background Levels	NR	NL	NA	NA	NL	NL	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Drinking Water Protection (Res DWP)	1.50E+04	<MDL	1.50E+03	9.10E+04	NL	NL	2.60E+05	3.00E+04	3.50E+04	1.00E+02	4.00E+03	2.10E+03	1.80E+03	1.60E+04	5.60E+03	Various		
Groundwater Surface Water Interface Protection (GSIP)	3.40E+04	NL	3.00E+02	3.20E+03	NL	NL	4.40E+04	ID	7.30E+02	1.200 (X)	1.80E+03	5.10E+02	1.10E+03	5.40E+03	8.20E+02	Various		
Soil Volatilization to Indoor Air Inhalation (Res SVII)	2.90E+08 (C)	NL	8.70E+04	4.0E+05 (C)	NL	NL	5.4E+07 (C)	3.7E+07 (C)	2.50E+05	1.10E+04	2.50E+05	4.3E+06 (C)	2.6E+06 (C)	3.3E+05 (C)	6.3E+06 (C)	Various		
Ambient Air Infinite Source Volatile Soil Inhalation (Res VSI)	1.30E+08	NL	7.20E+05	1.70E+06	NL	NL	2.90E+07	4.50E+07	3.00E+05	1.70E+05	3.80E+06	2.10E+07	1.60E+07	2.80E+06	4.60E+07	Various		
Ambient Air Finite VSI for 5 Meter Source Thickness	1.30E+08	NL	1.00E+06	1.70E+06	NL	NL	2.90E+07	4.50E+07	3.00E+05	4.80E+05	1.20E+07	5.00E+08	3.80E+08	5.10E+06	6.10E+07	Various		
Ambient Air Finite VSI for 2 Meter Source Thickness	1.90E+08	NL	2.20E+06	2.														

**Table 4**  
**SUMMARY OF BACKFILL ANALYTICAL RESULTS**  
**VOCs, SVOCs, PCBs, and METALS**  
**PLANT 6 - AREA 5-7, 7 and 9**  
**401 NORTH VERLINDEN AVENUE, LANSING, MICHIGAN**  
**PM PROJECT #01-4174-6**

 <b>VOCs, SVOCs, PCBs and METALS</b> (µg/Kg)			VOCs	SVOCs	PCBs	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver	Zinc
Chemical Abstract Service Number (CAS#)			Various	Various	1336363	7440382	7440393	7440439	16065831	7440508	7439921	7439976	7782492	7440224	7440666
Sample ID	Sample Date	Sample Depth (feet bgs)	VOCs	SVOCs	PCBs	Michigan Ten Metals									
S-1 (Backfill)	11/30/2015	Composite	<MDL	<MDL	<330	1,000	29,500	<200	2,780	3,360	4,090	<50	<400	<200	6,660
S-2 (Backfill)	11/30/2015	Composite	<MDL	<MDL	400	1,000	23,800	<200	2,330	2,550	3,890	<50	<400	<200	4,830
S-3 (Backfill)	11/30/2015	Composite	<MDL	<MDL	<330	1,010	21,000	<200	2,330	3,120	3,870	<50	<400	<200	7,470
<b>Cleanup Criteria Requirements for Response Activity (R 299.1 - R 299.50)</b> <b>Generic Soil Cleanup Criteria and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels, December 30, 2013</b> <b>MDEQ Guidance Document For The Vapor Intrusion Pathway, Policy and Procedure Number: 09-017, Appendix D Vapor Intrusion Screening Values, May 2013</b>															
<b>Residential (µg/Kg)</b>															
Statewide Default Background Levels	Various	Various	NA	NA	NA	5,800	75,000	1,200	18,000	32,000	21,000	130	410	1,000	47,000
Drinking Water Protection (DWP)	Various	Various	NLL	NLL	NLL	4,600	1.30E+06	6,000	30,000	5.80E+06	7.00E+05	1,700	4,000	4,500	2.40E+06
Groundwater Surface Water Interface Protection (GSIP)	Various	Various	NLL	NLL	NLL	4,600	(G)	(G,X)	3,300	(G)	50 (M); 1.2	400	100 (M); 27	(G)	
Soil Volatilization to Indoor Air Inhalation (SVII)	Various	Various	3.0E+06	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	48,000	NLV	NLV	NLV
Ambient Air Infinite Source Volatile Soil Inhalation (VSI)	Various	Various	2.40E+05	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	52,000	NLV	NLV	NLV
Ambient Air Finite VSI for 5 Meter Source Thickness	Various	Various	7.9E+06	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	52,000	NLV	NLV	NLV
Ambient Air Finite VSI for 2 Meter Source Thickness	Various	Various	7.9E+06	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	52,000	NLV	NLV	NLV
Ambient Air Particulate Soil Inhalation (PSI)	Various	Various	5.2E+06	7.20E+05	3.30E+08	1.70E+06	2.60E+05	1.30E+08	—	2.00E+07	1.30E+08	6.70E+06	ID		
Direct Contact (DC)	Various	Various	(T)	7,600	3.70E+07	5.50E+05	2.50E+06	2.00E+07	4.00E+05	1.60E+05	2.60E+06	2.50E+06	1.70E+08		
<b>Nonresidential (µg/Kg)</b>															
Drinking Water Protection (Nonres DWP)	Various	Various	NLL	4,600	1.30E+06	6,000	30,000	5.80E+06	7.00E+05	1,700	4,000	4,500	5.00E+06		
Soil Volatilization to Indoor Air Inhalation (Nonres SVII)	Various	Various	1.6E+07	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	89,000	NLV	NLV	NLV
Ambient Air Infinite Source Volatile Soil Inhalation (Nonres VSI)	Various	Various	8.10E+05	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	62,000	NLV	NLV	NLV
Ambient Air Finite VSI for 5 Meter Source Thickness	Various	Various	2.8E+07	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	62,000	NLV	NLV	NLV
Ambient Air Finite VSI for 2 Meter Source Thickness	Various	Various	2.8E+07	NLV	NLV	NLV	NLV	NLV	NLV	NLV	NLV	62,000	NLV	NLV	NLV
Ambient Air Particulate Soil Inhalation (Nonres PSI)	Various	Various	6.5E+06	9.10E+05	1.50E+08	2.20E+06	2.40E+05	5.90E+07	—	8.80E+06	5.90E+07	2.90E+06	ID		
Direct Contact (Nonres DC)	Various	Various	(T)	37,000	1.30E+08	2.10E+06	9.20E+06	7.30E+07	9.0E+5 (DD)	5.80E+05	9.60E+06	9.00E+06	6.30E+08		
<b>Screening Levels (µg/Kg)</b>															
Soil Saturation Concentration Screening Levels (Csat)	Various	Various	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Residential Vapor Intrusion Soil Screening Levels (S <sub>VI-res</sub> )	Various	Various	1,900	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Nonresidential Vapor Intrusion Soil Screening Levels (S <sub>VI-nr</sub> )	Various	Various	39,000	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL

Backfill Generated From Crandell Brothers Trucking - 800 ISLAND HIGHWAY, CHARLOTTE, MICHIGAN

- Applicable Criterion/RBSL Exceeded
- BOLD** Value Exceeds Applicable Criterion/RBSL
- bgs Below Ground Surface (feet)
- 1 1,2,3-Trimethylbenzene RBSLs based on the more restrictive of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
- 2 Maximum of analyzed or calculated total lead value.
- ND Non-detected at levels above laboratory method detection limit (MDL)
- NA Not Applicable
- NL Not Listed
- NLL Not Likely to Leach
- NLV Not Likely to Volatilize
- ID Insufficient Data

LAND USE CATEGORY	TSCA, Subpart D	Part 201
Residential	1,000 µg/Kg, or	4,000 µg/Kg
Nonresidential	10,000 µg/Kg if capped	16,000 µg/Kg

TABLE 5  
PARTICLE DUST MONITORING RESULTS  
PLANT 6 - AREA 5-7, 401 NORTH VERLINDEN AVENUE, LANSING, MICHIGAN  
PM PROJECT #01-4174-6

<b>Partical Dust Monitoring (Area 5.7)</b>			
Date	Time	Close (ug/m3)	Far (ug/m3)
12/11/2015	10:00	23.0	12.0
12/11/2015	12:00	32.0	15.0
12/11/2015	13:00	16.0	9.0
12/11/2015	14:00	20.0	6.0
12/11/2015	15:00	128.0	7.0
12/11/2015	Close (Max - 178.0, Avg - 16.0)		
12/11/2015	Far (Max - 20.0, Avg - 4.0)		
12/14/2015	10:00	0.0	0.0
12/14/2015	11:00	4.0	0.0
12/14/2015	12:00	0.0	0.0
12/14/2015	13:00	0.0	0.0
12/14/2015	14:00	2.0	0.0
12/14/2015	15:00	0.0	0.0
12/14/2015	Close (Max - 14.0, Avg - 2.8)		
12/14/2015	Far (Max - 24.0, Avg - 1.0)		
12/15/2015	9:00	0.0	0.0
12/15/2015	10:00	1.0	0.0
12/15/2015	11:00	0.0	0.0
12/15/2015	12:00	0.0	0.0
12/15/2015	13:00	0.0	0.0
12/15/2015	14:00	0.0	0.0
12/15/2015	15:00	0.0	0.0
12/15/2015	Close (Max - 8.0, Avg - 2.0)		
12/15/2015	Far (Max - 2.0, Avg - 1.0)		
12/16/2015	9:00	0.0	0.0
12/16/2015	10:00	0.0	0.0
12/16/2015	11:00	0.0	0.0
12/16/2015	12:00	0.0	0.0
12/16/2015	13:00	0.0	0.0
12/16/2015	14:00	0.0	0.0
12/16/2015	15:00	0.0	0.0
12/16/2015	Close (Max - 17.0, Avg - 2.0)		
12/16/2015	Far (Max - 5.0, Avg - 1.0)		
12/17/2015	9:00	0.0	0.0
12/17/2015	10:00	1.0	0.0
12/17/2015	11:00	1.0	0.0
12/17/2015	12:00	0.0	0.0
12/17/2015	13:00	0.0	0.0
12/17/2015	14:00	0.0	0.0
12/17/2015	15:00	0.0	0.0
12/17/2015	Close (Max - 2.0, Avg - 1.0)		
12/17/2015	Far (Max - 2.0, Avg - 1.0)		

TABLE 6  
 PARTICLE DUST MONITORING RESULTS  
 PLANT 6 - AREA 7, 401 NORTH VERLINDEN AVENUE, LANSING, MICHIGAN  
 PM PROJECT #01-4174-6

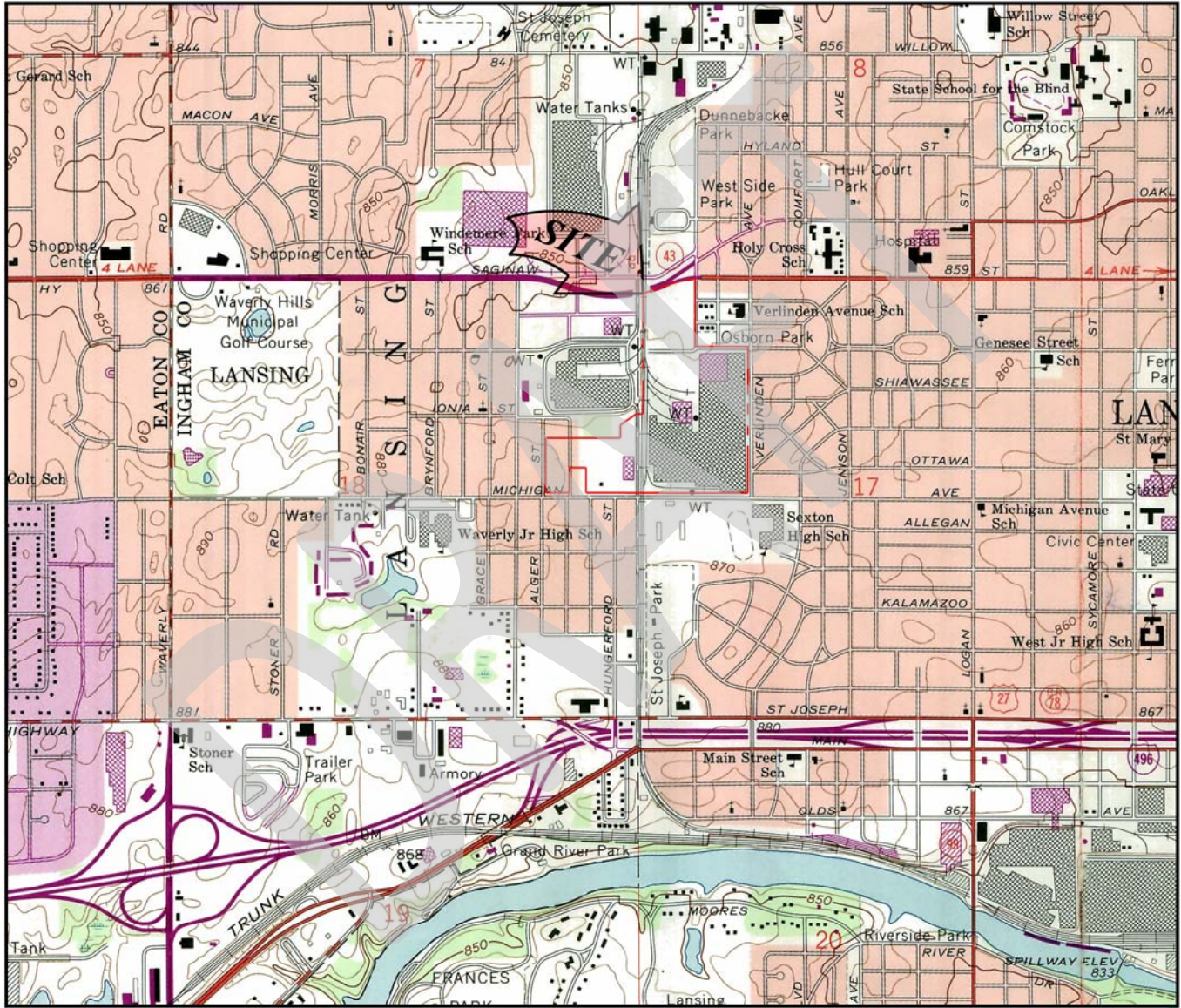
<b>Partical Dust Monitoring (Area 7)</b>			
Date	Time	Close (ug/m3)	Far (ug/m3)
12/3/2015	14:00	8.0	10.0
12/3/2015	15:00	9.0	8.0
12/3/2015	16:00	10.0	12.0
12/3/2015	Close (Max - 14.0, Avg - 2.0)		
12/3/2015	Far (Max - 15.0, Avg - 1.0)		
12/4/2015	8:00	5.0	4.0
12/4/2015	9:00	3.0	4.0
12/4/2015	10:00	4.0	5.0
12/4/2015	11:00	1.0	3.0
12/4/2015	12:00	2.0	3.0
12/4/2015	13:00	2.0	2.0
12/4/2015	14:00	2.0	3.0
12/4/2015	15:00	25.0	3.0
12/4/2015	16:00	22.0	2.0
12/4/2015	Close (Max - 27.0, Avg - 2.0)		
12/4/2015	Far (Max - 10.0, Avg - 1.0)		
12/7/2015	9:00	15.0	2.0
12/7/2015	10:30	18.0	10.0
12/7/2015	12:00	38.0	11.0
12/7/2015	13:00	12.0	9.0
12/7/2015	14:00	7.0	9.0
12/7/2015	15:00	8.0	9.0
12/7/2015	16:00	10.0	12.0
12/7/2015	Close (Max - 42.0, Avg - 2.0)		
12/7/2015	Far (Max - 13.0, Avg - 1.0)		

TABLE 7  
 PARTICLE DUST MONITORING RESULTS  
 PLANT 6 - AREA 9, 401 NORTH VERLINDEN AVENUE, LANSING, MICHIGAN  
 PM PROJECT #01-4174-6

Partical Dust Monitoring (Area 9)			
Date	Time	Close (ug/m3)	Far (ug/m3)
12/8/2015	8:00	6.0	8.0
12/8/2015	9:00	10.0	7.0
12/8/2015	10:00	4.0	6.0
12/8/2015	11:00	5.0	7.0
12/8/2015	12:00	5.0	8.0
12/8/2015	13:00	4.0	6.0
12/8/2015	14:00	4.0	8.0
12/8/2015	15:00	4.0	7.0
12/8/2015	Close (Max - 14.0, Avg - 2.0)		
12/8/2015	Far (Max - 10.0, Avg - 2.0)		
12/9/2015	8:00	3.0	2.0
12/9/2015	9:00	2.0	3.0
12/9/2015	10:00	2.0	3.0
12/9/2015	11:00	3.0	2.0
12/9/2015	12:00	3.0	2.0
12/9/2015	13:00	3.5	4.0
12/9/2015	14:00	3.0	3.0
12/9/2015	15:00	1.0	3.0
12/9/2015	Close (Max - 44.0, Avg - 2.0 )		
12/9/2015	Far (Max - 24.0, Avg - 1.0)		
12/10/2015	11:00	3.0	3.0
12/10/2015	12:00	2.0	3.0
12/10/2015	13:00	2.0	2.0
12/10/2015	14:00	2.0	2.0
12/10/2015	15:00	7.0	1.0
12/10/2015	Close (Max - 12.0, Avg - 1.0)		
12/10/2015	Far (Max - 15.0, Avg - 3.0)		

DRAFT

Figures



6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

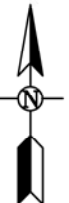
T:4 N., R:2 W., Sec. 7, 17, & 18

# INGHAM COUNTY

SCALE 1:24,000



**FIGURE 1**  
**PROPERTY VICINITY MAP**  
**USGS, 7.5 MINUTE SERIES**  
**LANSING SOUTH, MI QUADRANGLE, 1965. PHOTO REVISED 1973.**



PROJ:  
 FORMER LANSING PLANT 6  
 401 NORTH VERLINDEN AVENUE  
 LANSING, MI

THIS IS NOT A LEGAL SURVEY

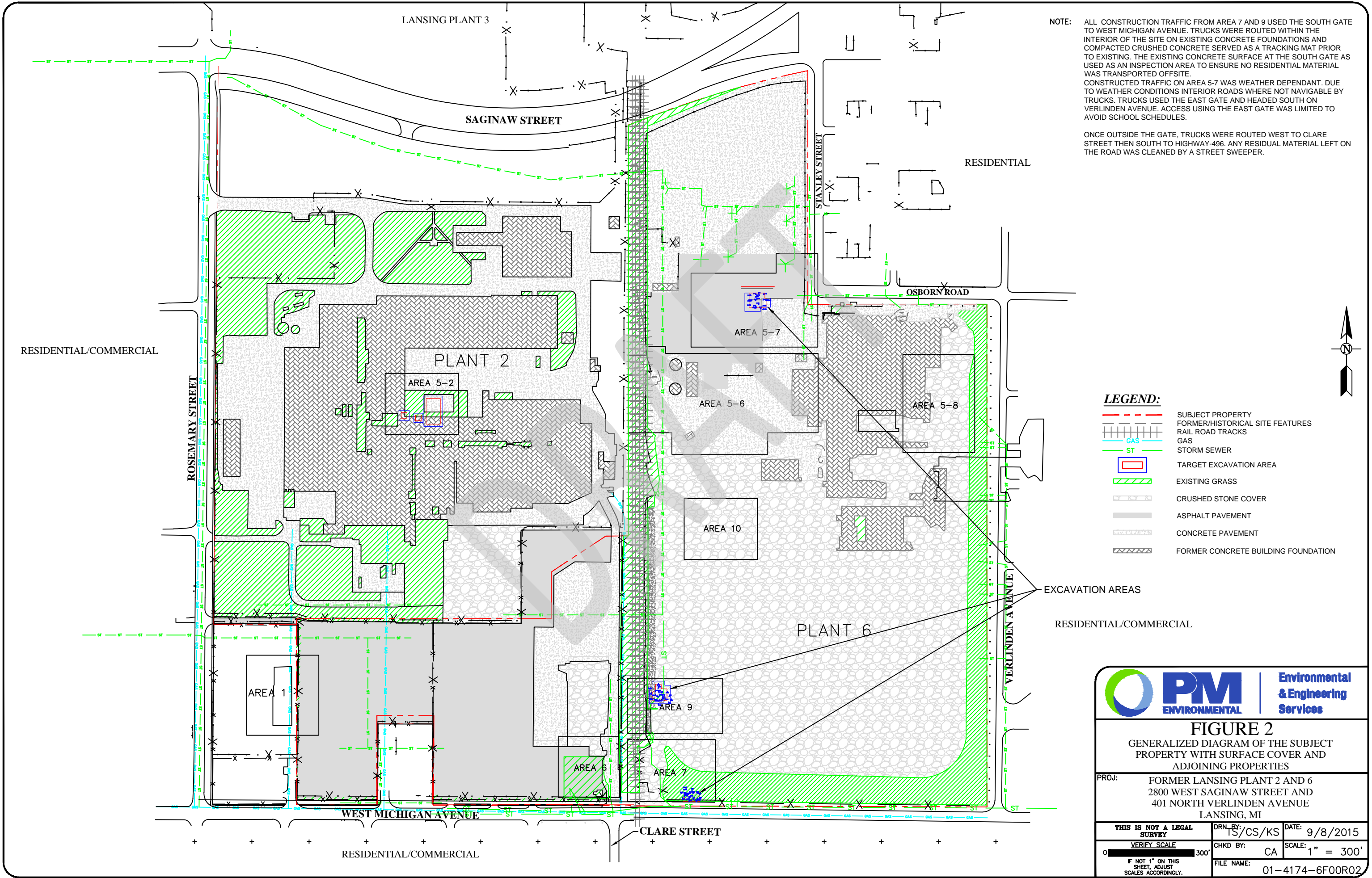
VERIFY SCALE  
 0 2,000'

IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRN BY: TS DATE: 12/13/2013

CHKD BY: CA/SZ SCALE: 1" = 2,000'

FILE NAME: 01-4174-3F01R00



NOTE: ALL CONSTRUCTION TRAFFIC FROM AREA 7 AND 9 USED THE SOUTH GATE TO WEST MICHIGAN AVENUE. TRUCKS WERE ROUTED WITHIN THE INTERIOR OF THE SITE ON EXISTING CONCRETE FOUNDATIONS AND COMPACTED CRUSHED CONCRETE SERVED AS A TRACKING MAT PRIOR TO EXISTING. THE EXISTING CONCRETE SURFACE AT THE SOUTH GATE AS USED AS AN INSPECTION AREA TO ENSURE NO RESIDENTIAL MATERIAL WAS TRANSPORTED OFFSITE.

CONSTRUCTION TRAFFIC ON AREA 5-7 WAS WEATHER DEPENDANT. DUE TO WEATHER CONDITIONS INTERIOR ROADS WERE NOT NAVIGABLE BY TRUCKS. TRUCKS USED THE EAST GATE AND HEADED SOUTH ON VERLINDEN AVENUE. ACCESS USING THE EAST GATE WAS LIMITED TO AVOID SCHOOL SCHEDULES.

ONCE OUTSIDE THE GATE, TRUCKS WERE ROUTED WEST TO CLARE STREET THEN SOUTH TO HIGHWAY-496. ANY RESIDUAL MATERIAL LEFT ON THE ROAD WAS CLEANED BY A STREET SWEEPER.

- LEGEND:**
- SUBJECT PROPERTY
  - FORMER/HISTORICAL SITE FEATURES
  - RAIL ROAD TRACKS
  - GAS
  - ST STORM SEWER
  - TARGET EXCAVATION AREA
  - EXISTING GRASS
  - CRUSHED STONE COVER
  - ASPHALT PAVEMENT
  - CONCRETE PAVEMENT
  - FORMER CONCRETE BUILDING FOUNDATION

EXCAVATION AREAS  
RESIDENTIAL/COMMERCIAL



<b>FIGURE 2</b>		
GENERALIZED DIAGRAM OF THE SUBJECT PROPERTY WITH SURFACE COVER AND ADJOINING PROPERTIES		
PROJ: FORMER LANSING PLANT 2 AND 6 2800 WEST SAGINAW STREET AND 401 NORTH VERLINDEN AVENUE LANSING, MI		
THIS IS NOT A LEGAL SURVEY	DRN. BY: TS/CS/KS	DATE: 9/8/2015
VERIFY SCALE	CHKD BY: CA	SCALE: 1" = 300'
0 IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	FILE NAME:	01-4174-6F00R02

SB-MF238	SB-MF238	SB-MF238	SB-MF238	SB-MF238
9/14/2012	9/14/2012	9/14/2012	9/14/2012	9/14/2012
1.0 - 2.0'	11.0 - 12.0'	17.0 - 18.0'	23.0 - 24.0'	29.0 - 30.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

SB-MH243	SB-MH243	SB-MH243	SB-MH243
9/6/2012	9/6/2012	9/6/2012	9/6/2012
1.0 - 2.0'	6.0 - 7.0'	14.0 - 15.0'	19.0 - 20.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED
SB-MJ243	SB-MJ243	SB-MJ243
11/21/2013	11/21/2013	11/21/2013
2.0 - 3.0'	8.0 - 9.0'	11.0 - 12.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL
		cis-1,2-DCE 110
		TCE 9,740
		OTHER VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED	EXCAVATED
SB-MK243	SB-MK243	SB-MK243	DUP-2
11/21/2013	11/21/2013	11/21/2013	11/21/2013
2.0 - 3.0'	7.0 - 8.0'	11.0 - 12.0'	11.0 - 12.0'
VOCs <MDL	ACETONE 770	ACETONE 770	cis-1,2-DCE 390
	TCE 3,440	cis-1,2-DCE 460	TCE 1,690
	OTHER VOCs <MDL	TCE 1,620	OTHER VOCs <MDL
		OTHER VOCs <MDL	

EXCAVATED	EXCAVATED	EXCAVATED	EXCAVATED
SB-ML241	SB-ML241	SB-ML241	DUP-1
11/20/2013	11/20/2013	11/20/2013	11/20/2013
2.0 - 3.0'	7.0 - 8.0'	11.0 - 12.0'	11.0 - 12.0'
ACETONE 860	TCE 130	cis-1,2-DCE 460	cis-1,2-DCE 350
OTHER VOCs <MDL	OTHER VOCs <MDL	VINYL CHLORIDE 2210	VINYL CHLORIDE 180
		OTHER VOCs <MDL	OTHER VOCs <MDL

SB-ML238	SB-ML238	SB-ML238	SB-ML238
9/6/2012	9/6/2012	9/6/2012	9/6/2012
1.0 - 2.0'	6.5 - 7.5'	14.0 - 15.0'	19.0 - 20.0'
VOCs <MDL	VOCs <MDL	1,1-DCA 230	1,1-DCA 1,400
		TCE 80	cis-1,2-DCE 800
		VINYL CHLORIDE 170	TCE 130
		OTHER VOCs <MDL	VINYL CHLORIDE 110
			OTHER VOCs <MDL

SB-ML233	SB-ML233	SB-ML233	SB-ML233
9/14/2012	9/14/2012	9/14/2012	9/14/2012
7.0 - 8.0'	13.0 - 14.0'	20.0 - 21.0'	27.0 - 28.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED
SB-ML245	SB-ML245	SB-ML245
11/21/2013	11/21/2013	11/21/2013
3.0 - 4.0'	7.0 - 8.0'	14.0 - 15.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL

SB-ML247	SB-ML247	SB-ML247	SB-ML247
9/6/2012	9/6/2012	9/6/2012	9/6/2012
2.0 - 3.0'	8.0 - 8.5'	13.0 - 14.0'	21.0 - 22.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

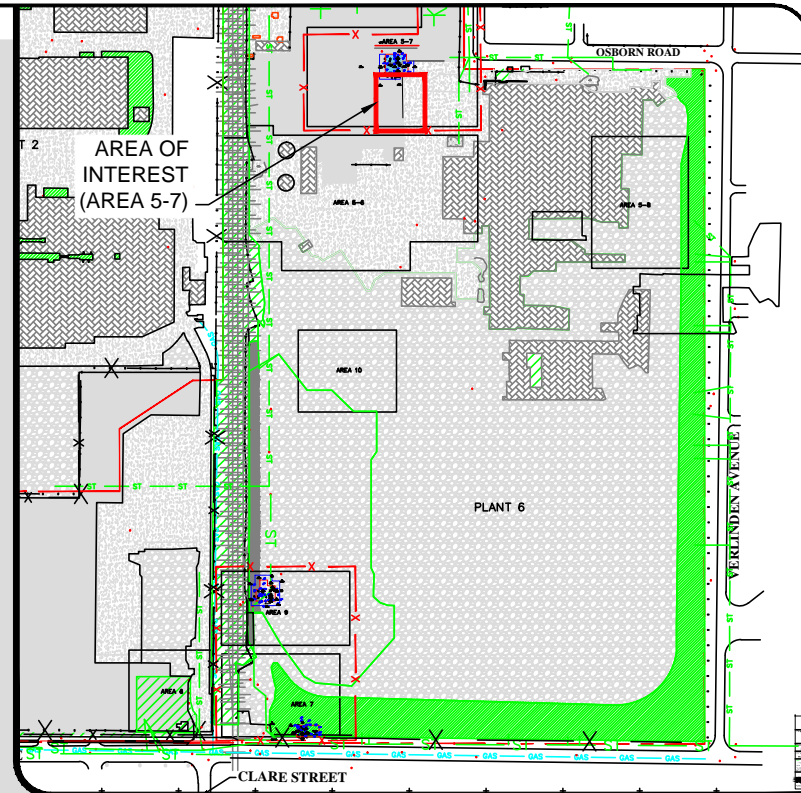
SB-MQ243	SB-MQ243
11/20/2013	11/20/2013
4.0 - 5.0'	8.0 - 9.0'
VOCs <MDL	VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED	EXCAVATED	EXCAVATED
SB-ML244	DUP-3	SB-ML244	SB-ML244	SB-ML244
11/21/2013	11/21/2013	11/21/2013	11/21/2013	11/21/2013
3.0 - 4.0'	3.0 - 4.0'	9.0 - 10.0'	14.0 - 15.0'	19.0 - 20.0'
VOCs <MDL	VOCs <MDL	TCE 130	VOCs <MDL	E 80
		OTHER VOCs <MDL		X 200
				OTHER VOCs <MDL

SB-MQ238	SB-MQ238	SB-MQ238	SB-MQ238	SB-MQ238
9/14/2012	9/14/2012	9/14/2012	9/14/2012	9/14/2012
5.0 - 6.0'	13.0 - 14.0'	19.0 - 20.0'	25.0 - 26.0'	29.0 - 30.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED
SB-MM243	SB-MM243	SB-MM243
11/20/2013	11/20/2013	11/20/2013
2.0 - 3.0'	7.0 - 8.0'	11.0 - 12.0'
VOCs <MDL	TCE 3,060	cis-1,2-DCE 80
	OTHER VOCs <MDL	OTHER VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED
SB-ML242	SB-ML242	SB-ML242
11/20/2013	11/20/2013	11/20/2013
2.0 - 3.0'	7.0 - 8.0'	11.0 - 12.0'
VOCs <MDL	cis-1,2-DCE 1,780	ACETONE 750
	trans-1,2-DCE 210	TCE 120
	TCE 7,070	OTHER VOCs <MDL
	OTHER VOCs <MDL	



**LEGEND:**

- SUBJECT PROPERTY
- FORMER/HISTORICAL SITE FEATURES
- RAIL ROAD TRACKS
- ST STORM SEWER
- GAS ABANDONED GAS LINE
- ABANDONED UTILITY CORRIDOR
- EXCAVATION LIMITS FOR OVERBURDEN SOIL FOR BENCHING/SLOPING
- EXCAVATION LIMITS FOR SOIL DESIGNATED FOR OFF SITE DISPOSAL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- EXCAVATION DEPTH 15' BGS.
- EXISTING SOIL BORING
- ▲ EXCAVATION SAMPLE
- SCREEN SAMPLE
- T TOLUENE
- X XYLENES
- TRICHLOROETHENE
- cis-1,2-DCE
- trans-1,2-DCE
- 1,1-DCA
- VOCs
- MDL
- UNITS
- μg/Kg (UNLESS NOTED)
- VALUE EXCEEDS APPLICABLE CRITERIA

NOTES: REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED



**FIGURE 3A**  
 DETAILED DIAGRAM OF THE AREA 5-7  
 EXCAVATION WITH HISTORICAL SAMPLE  
 LOCATIONS AND ANALYTICAL RESULTS

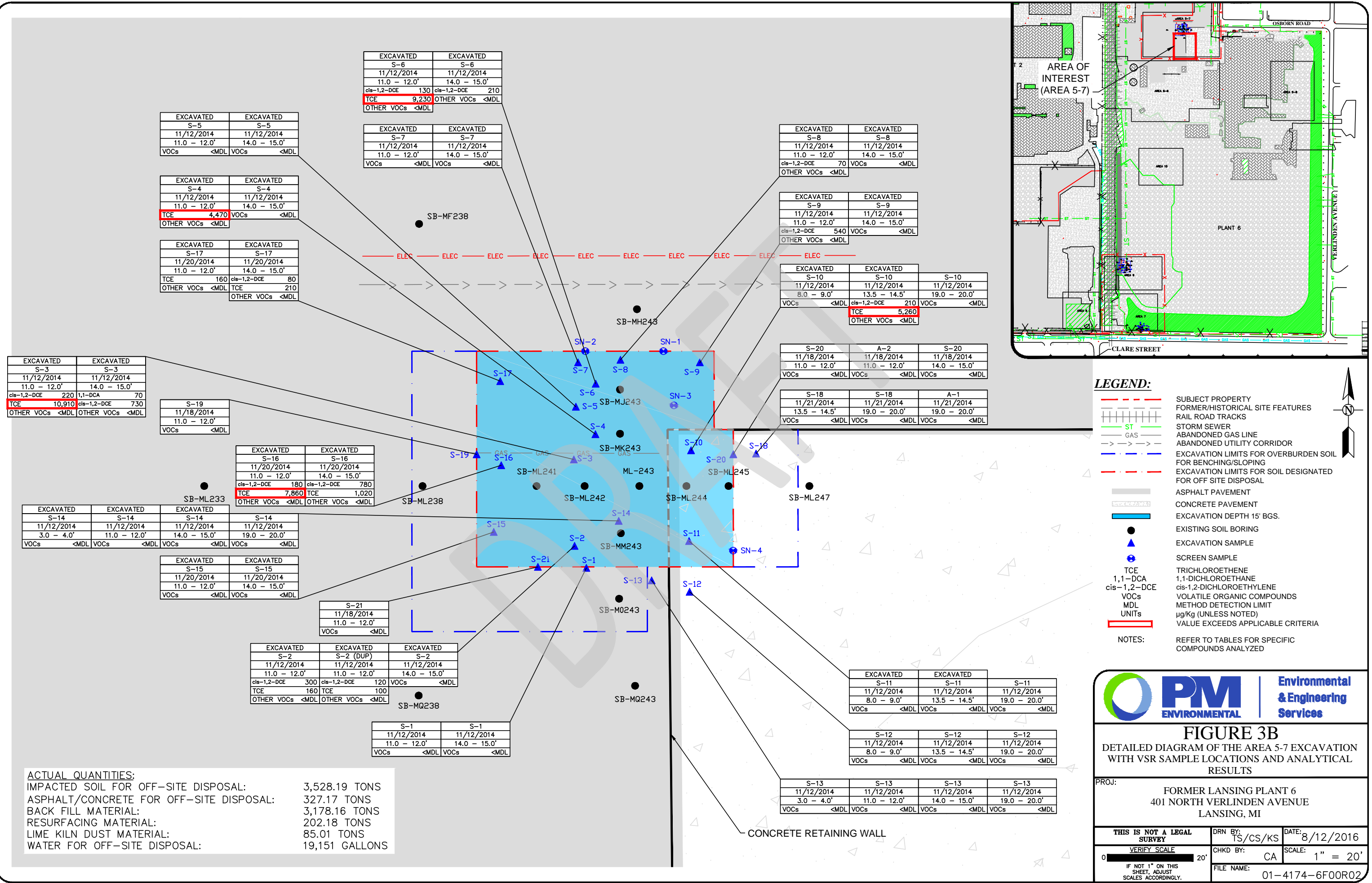
PROJ: FORMER LANSING PLANT 6  
 401 NORTH VERLINDEN AVENUE  
 LANSING, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: TS/CS/KS	DATE: 5/6/2016
VERIFY SCALE	CHKD BY: CA	SCALE: 1" = 20'
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	FILE NAME:	01-4174-6F00R02

**ACTUAL QUANTITIES:**

IMPACTED SOIL FOR OFF-SITE DISPOSAL:	3,528.19 TONS
ASPHALT/CONCRETE FOR OFF-SITE DISPOSAL:	327.17 TONS
BACK FILL MATERIAL:	3,178.16 TONS
RESURFACING MATERIAL:	202.18 TONS
LIME KILN DUST MATERIAL:	85.01 TONS
WATER FOR OFF-SITE DISPOSAL:	19,151 GALLONS

CONCRETE RETAINING WALL



**LEGEND:**

- SUBJECT PROPERTY
- FORMER/HISTORICAL SITE FEATURES
- RAIL ROAD TRACKS
- STORM SEWER
- GAS
- ABANDONED GAS LINE
- ABANDONED UTILITY CORRIDOR
- EXCAVATION LIMITS FOR OVERBURDEN SOIL FOR BENCHING/SLOPING
- EXCAVATION LIMITS FOR SOIL DESIGNATED FOR OFF SITE DISPOSAL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- EXCAVATION DEPTH 15' BGS.
- EXISTING SOIL BORING
- EXCAVATION SAMPLE
- ⊕ SCREEN SAMPLE
- TCE
- 1,1-DCA
- cis-1,2-DCE
- VOCs
- MDL
- UNITS
- VALUE EXCEEDS APPLICABLE CRITERIA

NOTES: REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED



**FIGURE 3B**  
 DETAILED DIAGRAM OF THE AREA 5-7 EXCAVATION WITH VSR SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PROJ: FORMER LANSING PLANT 6  
 401 NORTH VERLINDEN AVENUE  
 LANSING, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: TS/CS/KS	DATE: 8/12/2016
VERIFY SCALE	CHKD BY: CA	SCALE: 1" = 20'
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	FILE NAME:	01-4174-6F00R02

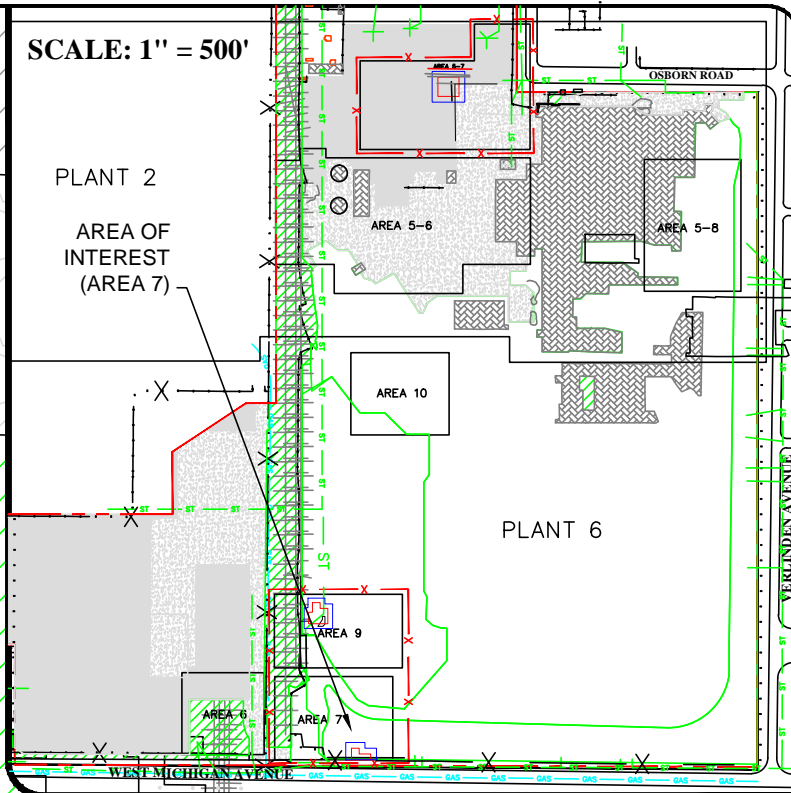
**ACTUAL QUANTITIES:**

IMPACTED SOIL FOR OFF-SITE DISPOSAL:	3,528.19 TONS
ASPHALT/CONCRETE FOR OFF-SITE DISPOSAL:	327.17 TONS
BACK FILL MATERIAL:	3,178.16 TONS
RESURFACING MATERIAL:	202.18 TONS
LIME KILN DUST MATERIAL:	85.01 TONS
WATER FOR OFF-SITE DISPOSAL:	19,151 GALLONS

CONCRETE RETAINING WALL

ACTUAL QUANTITIES:  
 IMPACTED SOIL FOR OFF-SITE DISPOSAL: 1,239.77 TONS  
 BACK FILL MATERIAL: 1,093.37 TONS  
 RESURFACING MATERIAL: 0 TONS  
 WATER FOR OFF-SITE DISPOSAL: 1,600 GALLONS

SCALE: 1" = 500'



# AREA 7

SB-42	SB-42
8/4/2011	8/4/2011
1.0 - 2.0'	6.0 - 7.0'
VOCs <MDL	E 250
	ISOP 570
	MCYHA 240
	T 370
	X 1,740
	OTHER VOCs <MDL

EXCAVATED	EXCAVATED
SB-TA220	SB-TA220
12/17/2013	12/17/2013
3.5 - 4.0'	8.5 - 9.0'
VOCs <MDL	CYCLOHEXANE 7,000
	E 75,000
	ISOP 146,000
	MCYHA 240,000
	X 373,000
	OTHER VOCs <MDL

EXCAVATED	EXCAVATED	SB-TB219
SB-TB219	SB-TB219	SB-TB219
12/17/2013	12/17/2013	12/17/2013
3.5 - 4.0'	8.5 - 9.0'	13.5 - 14.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL

SB-SZ217	SB-SZ217	SB-SZ217	SB-SZ217
6/4/2012	6/4/2012	6/4/2012	6/4/2012
1.0 - 2.0'	4.0 - 5.0'	12.0 - 13.0'	18.0 - 19.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

SB-SZ212	SB-SZ212	SB-SZ212	SB-SZ212
6/4/2012	6/4/2012	6/4/2012	6/4/2012
1.0 - 2.0'	7.0 - 8.0'	13.0 - 14.0'	19.0 - 20.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

SB-TB218	SB-TB218	SB-TB218	SB-TB218
12/17/2013	12/17/2013	12/17/2013	12/17/2013
3.5 - 4.0'	8.5 - 9.0'	10.0 - 11.0'	13.5 - 14.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

SB-TD212	SB-TD212
11/29/2012	11/29/2012
8.0 - 8.5'	10.0 - 10.5'
VOCs <MDL	VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED	EXCAVATED
SB-TB220	SB-TB220	SB-TB220	SB-TB220
9/25/2012	9/25/2012	12/17/2013	12/17/2013
4.0 - 5.0'	9.0 - 10.0'	3.0 - 5.0'	5.0 - 7.0'
METHYL ACETATE 730	E 64,000	E 880	DICLFLMETH 70
OTHER VOCs <MDL	ISOP 83,000	ISOP 1,970	OTHER VOCs <MDL
	MCYHA 270,000	MCYHA 2,980	
	T 37,000	T 100	
	X 472,000	X 840	
	OTHER VOCs <MDL	OTHER VOCs <MDL	

SB-TD220	SB-TD220	SB-TD220	SB-TD220
11/6/2012	11/6/2012	11/6/2012	11/6/2012
2.0 - 3.0'	8.0 - 9.0'	14.0 - 15.0'	19.0 - 20.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL	VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED
SB-TB223	SB-TB223	SB-TB223
12/17/2013	12/17/2013	12/17/2013
3.5 - 4.0'	8.5 - 9.0'	11.5 - 12.0'
METHYL ACETATE 730	VOCs <MDL	E 150
OTHER VOCs <MDL		ISOP 190
		T 70
		X 200
		OTHER VOCs <MDL

EXCAVATED	EXCAVATED
SB-TB221	SB-TB221
12/17/2013	12/17/2013
3.5 - 5.0'	10.0 - 11.0'
VOCs <MDL	VOCs <MDL

### LEGEND:

- SUBJECT PROPERTY
  - - - APPROXIMATE FORMER/HISTORICAL SITE
  - - - FEATURES
  - - - FENCE
  - - - WATER
  - - - ST STORM SEWER
  - - - FO FIBER OPTIC
  - - - EXCAVATION LIMITS FOR OVERBURDEN SOIL FOR BENCHING/SLOPING
  - - - EXCAVATION LIMITS FOR SOIL DESIGNATED FOR OFF SITE DISPOSAL
  - EXISTING GRASS
  - CONCRETE
  - CONCRETE SLAB BELOW GROUND SURFACE
  - GRAVEL COVER
  - CRUSHED STONE/DEBRIS
  - EXCAVATION DEPTH 12' BGS.
  - EXCAVATION DEPTH 11' BGS.
  - EXISTING SOIL BORING
  - DELINEATION SOIL SAMPLE LOCATION
  - SCREEN SAMPLE
  - E ETHYLBENZENE
  - X XYLENES
  - DICLFLMETH DICHLORODIFLUOROMETHANE
  - ISOP ISOPROPYLBENZENE
  - MCYHA METHYL CYCLOHEXANE
  - VOCs VOLATILE ORGANIC COMPOUNDS
  - MDL METHOD DETECTION LIMIT
  - UNITS µg/Kg (UNLESS NOTED)
  - VALUE EXCEEDS APPLICABLE CRITERIA
- NOTES: REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED

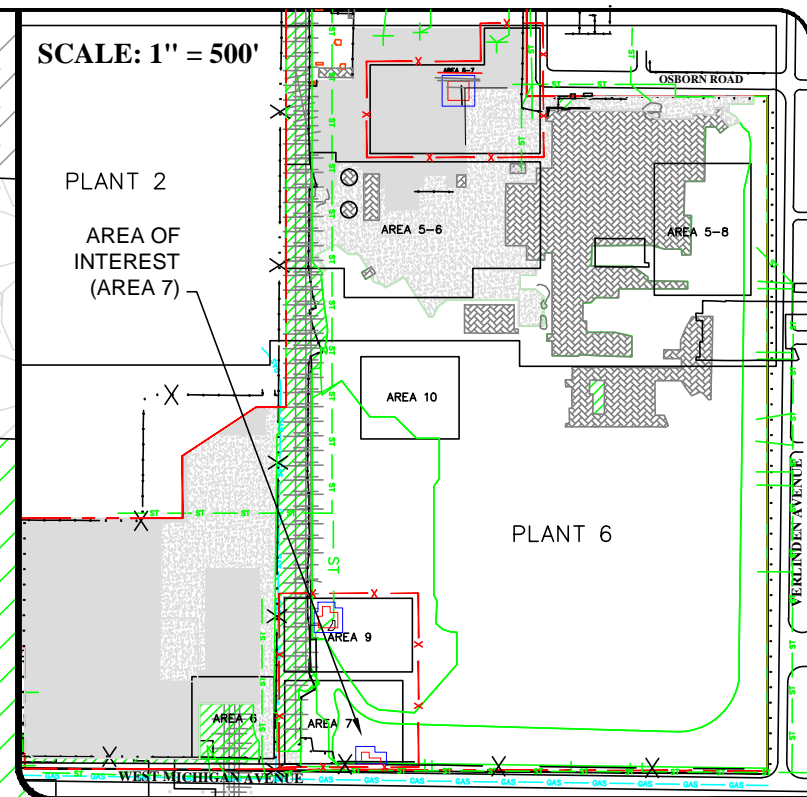
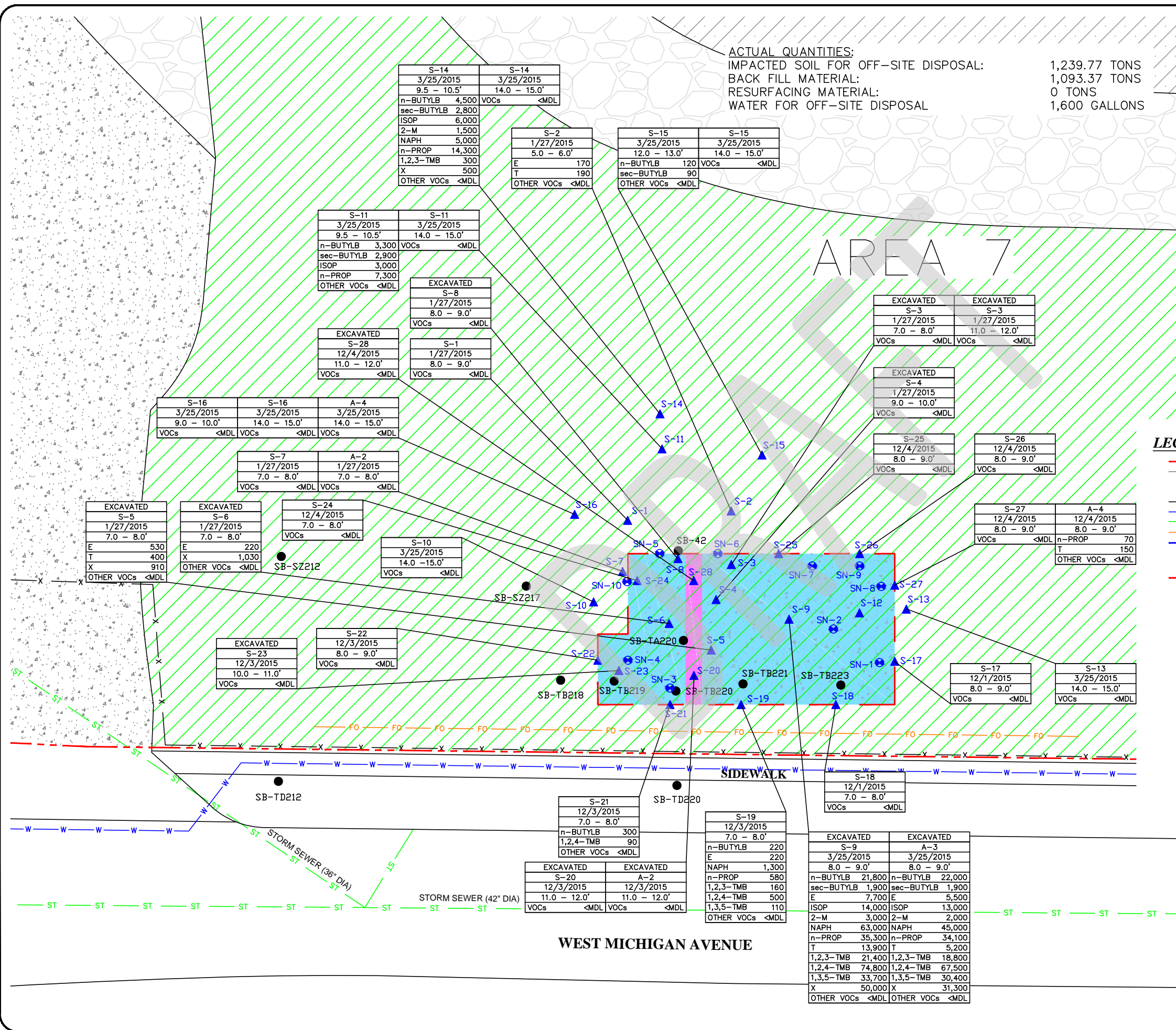


**FIGURE 4A**  
 DETAILED DIAGRAM OF THE AREA 7  
 EXCAVATION AREA WITH HISTORICAL SAMPLE  
 LOCATIONS AND ANALYTICAL RESULTS

PROJ: FORMER LANSING PLANT 6  
 401 NORTH VERLINDEN AVENUE  
 LANSING, MI

THIS IS NOT A LEGAL SURVEY  
 VERIFY SCALE  
 0 20'  
 IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRN BY: KS DATE: 8/12/2016  
 CHKD BY: CA SCALE: 1" = 20'  
 FILE NAME: 01-4174-6F00R00



**SCALE: 1" = 500'**

**LEGEND:**

- SUBJECT PROPERTY (Red dashed line)
- APPROXIMATE FORMER/HISTORICAL SITE FEATURES (Black dashed line)
- FENCE (Black line with 'X' markers)
- WATER (Blue line with 'W' markers)
- STORM SEWER (Green line with 'ST' markers)
- FIBER OPTIC (Orange line with 'FO' markers)
- EXCAVATION LIMITS FOR OVERBURDEN SOIL FOR BENCHING/SLOPING (Blue dashed line)
- EXCAVATION LIMITS FOR SOIL DESIGNATED FOR OFF SITE DISPOSAL (Red dashed line)
- EXISTING GRASS (Green hatched area)
- CONCRETE (Grey hatched area)
- CONCRETE SLAB BELOW GROUND SURFACE (Grey hatched area)
- GRAVEL COVER (White hatched area)
- CRUSHED STONE/DEBRIS (Black hatched area)
- EXCAVATION DEPTH 12' BGS. (Pink shaded area)
- EXCAVATION DEPTH 11' BGS. (Blue shaded area)
- EXISTING SOIL BORING (Black dot)
- DELINEATION SOIL SAMPLE LOCATION (Blue triangle)
- SCREEN SAMPLE (Blue circle)

**UNITS:** μg/Kg (UNLESS NOTED)  
 VALUE EXCEEDS APPLICABLE CRITERIA

**NOTES:** REFER TO TABLES FOR SPECIFIC COMPOUNDS ANALYZED

**PM ENVIRONMENTAL** | Environmental & Engineering Services

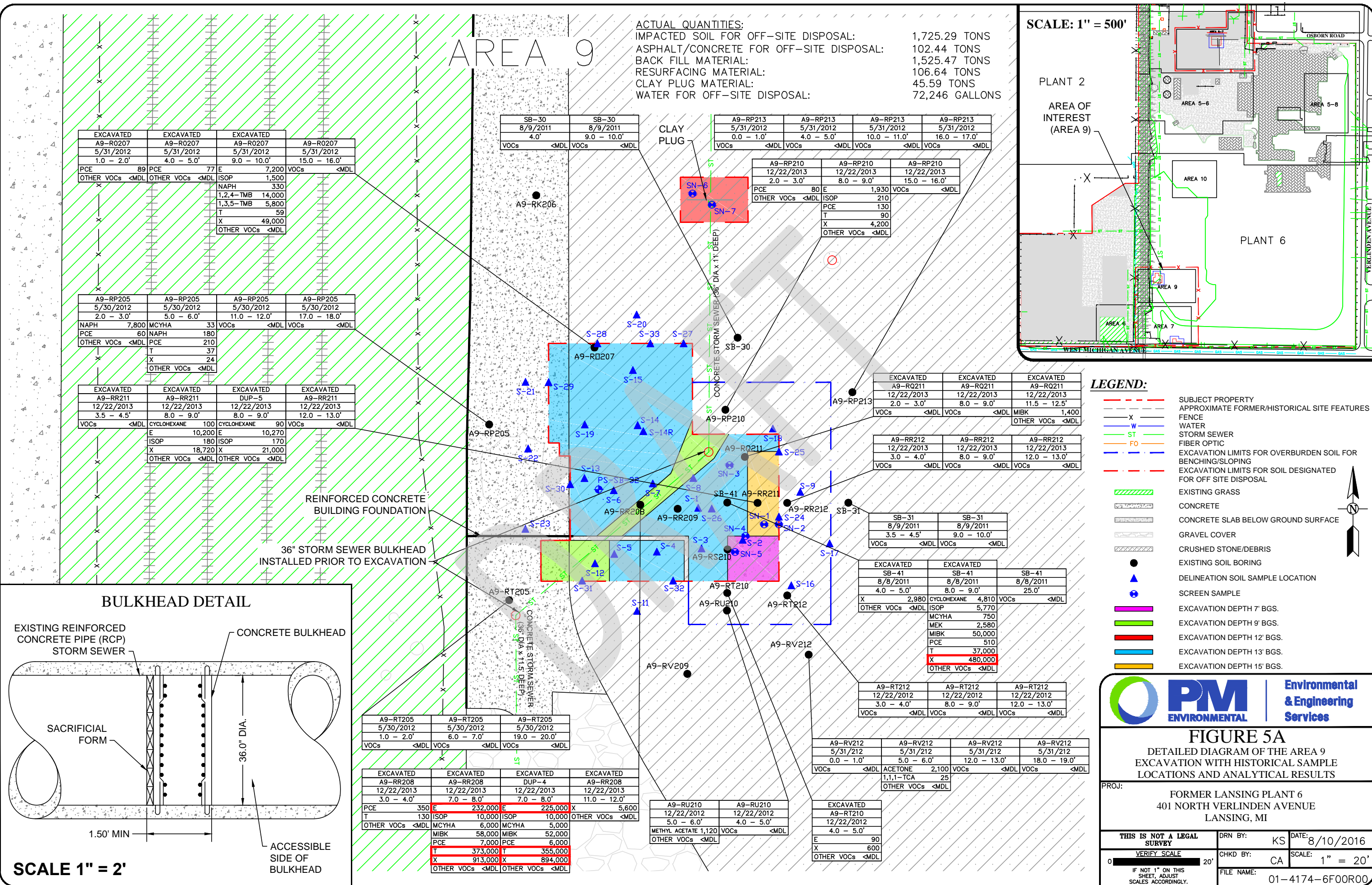
**FIGURE 4B**  
 DETAILED DIAGRAM OF THE AREA 7 EXCAVATION WITH VSR SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PROJ: FORMER LANSING PLANT 6  
 401 NORTH VERLINDEN AVENUE  
 LANSING, MI

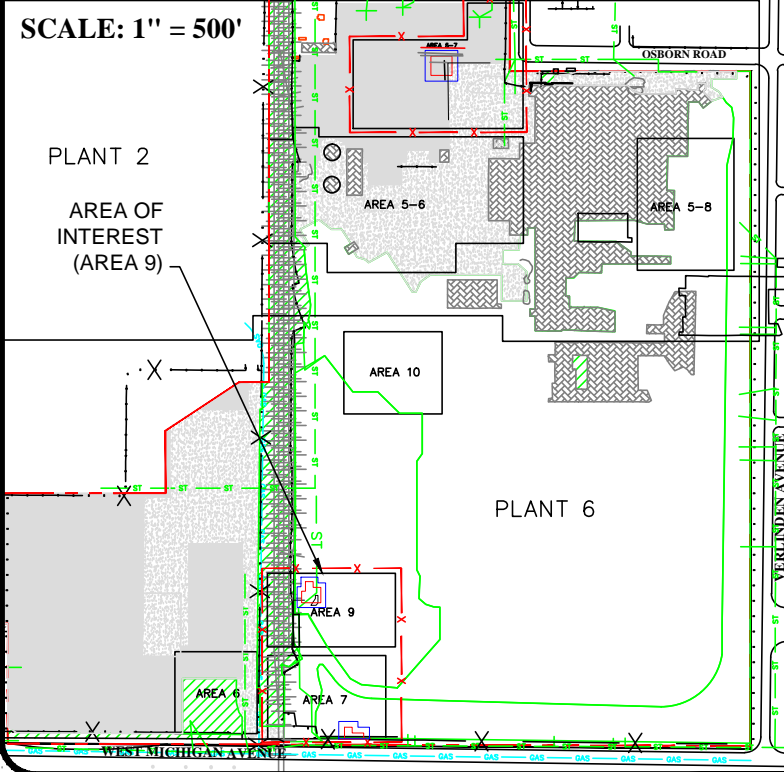
THIS IS NOT A LEGAL SURVEY  
 VERIFY SCALE

DRN BY: KS DATE: 8/12/2016  
 CHKD BY: CA SCALE: 1" = 20'  
 FILE NAME: 01-4174-6F00R00

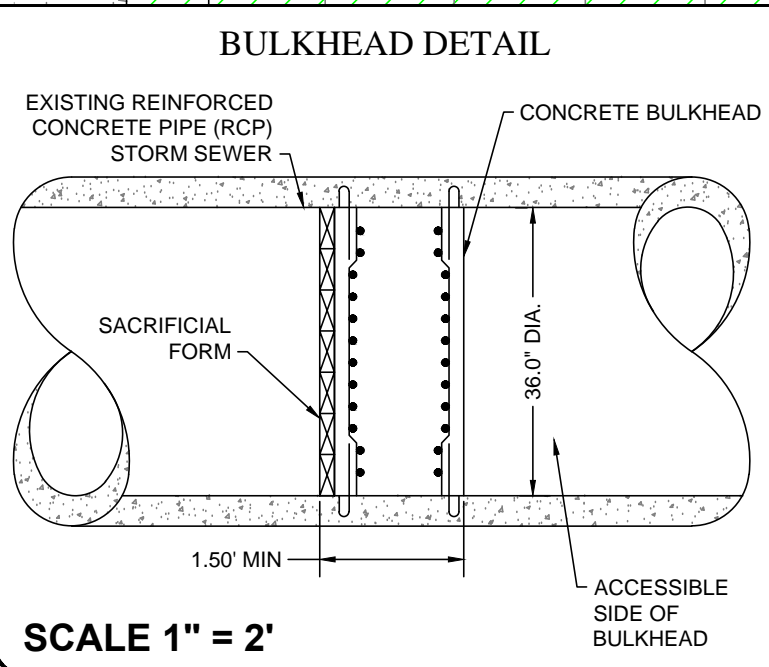
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



ACTUAL QUANTITIES:  
 IMPACTED SOIL FOR OFF-SITE DISPOSAL: 1,725.29 TONS  
 ASPHALT/CONCRETE FOR OFF-SITE DISPOSAL: 102.44 TONS  
 BACK FILL MATERIAL: 1,525.47 TONS  
 RESURFACING MATERIAL: 106.64 TONS  
 CLAY PLUG MATERIAL: 45.59 TONS  
 WATER FOR OFF-SITE DISPOSAL: 72,246 GALLONS



- LEGEND:**
- - - - - SUBJECT PROPERTY
  - - - - - APPROXIMATE FORMER/HISTORICAL SITE FEATURES
  - - - - - FENCE
  - - - - - WATER
  - - - - - STORM SEWER
  - - - - - FIBER OPTIC
  - - - - - EXCAVATION LIMITS FOR OVERBURDEN SOIL FOR BENCHING/SLOPING
  - - - - - EXCAVATION LIMITS FOR SOIL DESIGNATED FOR OFF SITE DISPOSAL
  - EXISTING GRASS
  - CONCRETE
  - CONCRETE SLAB BELOW GROUND SURFACE
  - GRAVEL COVER
  - CRUSHED STONE/DEBRIS
  - EXISTING SOIL BORING
  - DELINEATION SOIL SAMPLE LOCATION
  - SCREEN SAMPLE
  - EXCAVATION DEPTH 7' BGS.
  - EXCAVATION DEPTH 9' BGS.
  - EXCAVATION DEPTH 12' BGS.
  - EXCAVATION DEPTH 13' BGS.
  - EXCAVATION DEPTH 15' BGS.



EXCAVATED	EXCAVATED	EXCAVATED	EXCAVATED
A9-RR208	A9-RR208	DUP-4	A9-RR208
12/22/2013	12/22/2013	12/22/2013	12/22/2013
3.0 - 4.0'	7.0 - 8.0'	7.0 - 8.0'	11.0 - 12.0'
PCE 350	E 232,000	E 225,000	X 5,600
T 130	ISOP 10,000	ISOP 10,000	OTHER VOCs <MDL
OTHER VOCs <MDL	MCYHA 6,000	MCYHA 5,000	
	MIBK 58,000	MIBK 52,000	
	PCE 7,000	PCE 6,000	
	T 373,000	T 355,000	
	X 913,000	X 894,000	
	OTHER VOCs <MDL	OTHER VOCs <MDL	

EXCAVATED	EXCAVATED	EXCAVATED
A9-RQ211	A9-RQ211	A9-RQ211
12/22/2013	12/22/2013	12/22/2013
2.0 - 3.0'	8.0 - 9.0'	11.5 - 12.5'
VOCs <MDL	VOCs <MDL	MIBK 1,400
		OTHER VOCs <MDL

EXCAVATED	EXCAVATED	EXCAVATED
A9-RR212	A9-RR212	A9-RR212
12/22/2013	12/22/2013	12/22/2013
3.0 - 4.0'	8.0 - 9.0'	12.0 - 13.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL

EXCAVATED	EXCAVATED	SB-41
SB-41	SB-41	SB-41
8/8/2011	8/8/2011	8/8/2011
4.0 - 5.0'	8.0 - 9.0'	25.0'
X 2,980	CYCLOHEXANE 4,810	VOCs <MDL
OTHER VOCs <MDL	ISOP 5,770	
	MCYHA 750	
	MEK 2,580	
	MIBK 50,000	
	PCE 510	
	T 37,000	
	X 480,000	
	OTHER VOCs <MDL	

EXCAVATED	EXCAVATED	A9-RT212
A9-RT212	A9-RT212	A9-RT212
12/22/2012	12/22/2012	12/22/2012
3.0 - 4.0'	8.0 - 9.0'	12.0 - 13.0'
VOCs <MDL	VOCs <MDL	VOCs <MDL

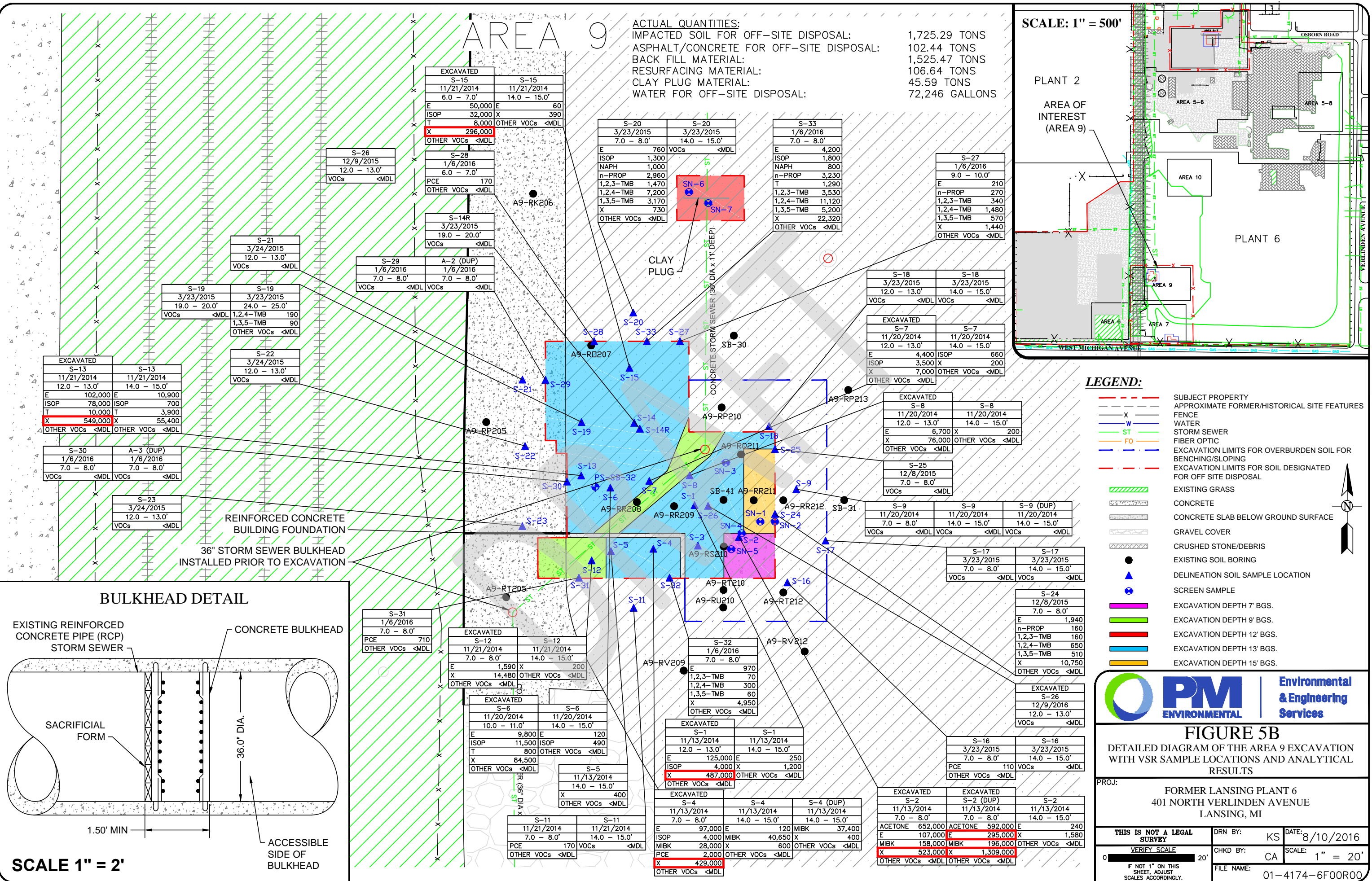
EXCAVATED	EXCAVATED	EXCAVATED
A9-RV212	A9-RV212	A9-RV212
5/31/212	5/31/212	5/31/212
0.0 - 1.0'	5.0 - 6.0'	12.0 - 13.0'
VOCs <MDL	ACETONE 2,100	VOCs <MDL
	1,1,1-TCA 25	
	OTHER VOCs <MDL	

**PM ENVIRONMENTAL** | Environmental & Engineering Services

**FIGURE 5A**  
 DETAILED DIAGRAM OF THE AREA 9 EXCAVATION WITH HISTORICAL SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PROJ: FORMER LANSING PLANT 6  
 401 NORTH VERLINDEN AVENUE  
 LANSING, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS	DATE: 8/10/2016
VERIFY SCALE	CHKD BY: CA	SCALE: 1" = 20'
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	FILE NAME:	01-4174-6F00R00



ACTUAL QUANTITIES:  
 IMPACTED SOIL FOR OFF-SITE DISPOSAL: 1,725.29 TONS  
 ASPHALT/CONCRETE FOR OFF-SITE DISPOSAL: 102.44 TONS  
 BACK FILL MATERIAL: 1,255.47 TONS  
 RESURFACING MATERIAL: 106.64 TONS  
 CLAY PLUG MATERIAL: 45.59 TONS  
 WATER FOR OFF-SITE DISPOSAL: 72,246 GALLONS

SCALE: 1" = 500'

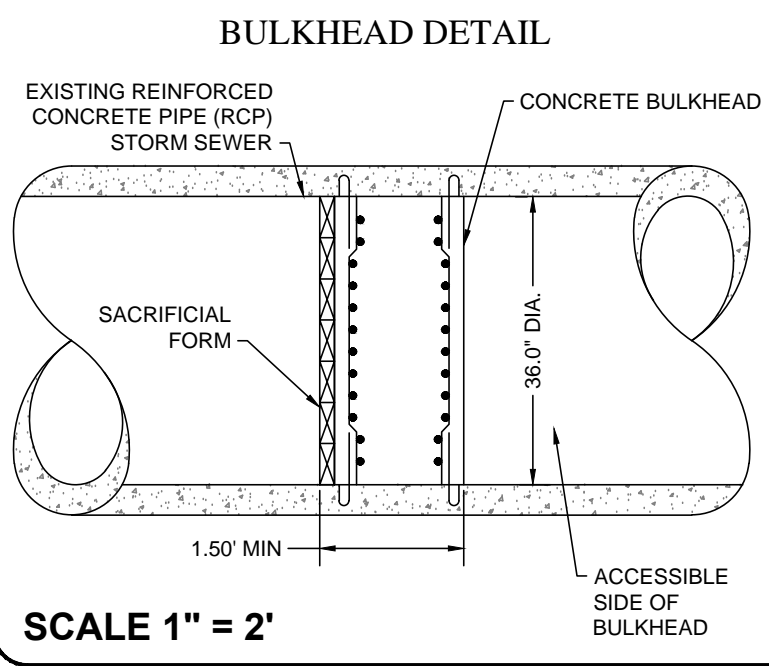
- LEGEND:**
- SUBJECT PROPERTY
  - APPROXIMATE FORMER/HISTORICAL SITE FEATURES
  - x FENCE
  - WATER
  - STORM SEWER
  - FIBER OPTIC
  - EXCAVATION LIMITS FOR OVERBURDEN SOIL FOR BENCHING/SLOPING
  - EXCAVATION LIMITS FOR SOIL DESIGNATED FOR OFF SITE DISPOSAL
  - / / / EXISTING GRASS
  - CONCRETE
  - CONCRETE SLAB BELOW GROUND SURFACE
  - GRAVEL COVER
  - CRUSHED STONE/DEBRIS
  - EXISTING SOIL BORING
  - ▲ DELINEATION SOIL SAMPLE LOCATION
  - SCREEN SAMPLE
  - █ EXCAVATION DEPTH 7' BGS.
  - █ EXCAVATION DEPTH 9' BGS.
  - █ EXCAVATION DEPTH 12' BGS.
  - █ EXCAVATION DEPTH 13' BGS.
  - █ EXCAVATION DEPTH 15' BGS.



**FIGURE 5B**  
 DETAILED DIAGRAM OF THE AREA 9 EXCAVATION WITH VSR SAMPLE LOCATIONS AND ANALYTICAL RESULTS

PROJ: FORMER LANSING PLANT 6  
 401 NORTH VERLINDEN AVENUE  
 LANSING, MI

THIS IS NOT A LEGAL SURVEY	DRN BY: KS	DATE: 8/10/2016
VERIFY SCALE	CHKD BY: CA	SCALE: 1" = 20'
IF NOT 1" ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	FILE NAME:	01-4174-6F00R00



EXCAVATED		S-13	
11/21/2014		11/21/2014	
12.0 - 13.0'		14.0 - 15.0'	
E	102,000	E	10,900
ISOP	78,000	ISOP	700
T	10,000	T	3,900
X	549,000	X	55,400
OTHER VOCs <MDL		OTHER VOCs <MDL	

S-19		S-19	
3/23/2015		3/23/2015	
19.0 - 20.0'		24.0 - 25.0'	
VOCs	<MDL	1,2,4-TMB	190
		1,3,5-TMB	90
		OTHER VOCs	<MDL

REINFORCED CONCRETE BUILDING FOUNDATION  
 36" STORM SEWER BULKHEAD INSTALLED PRIOR TO EXCAVATION

EXCAVATED		S-15	
11/21/2014		11/21/2014	
6.0 - 7.0'		14.0 - 15.0'	
E	50,000	E	60
ISOP	32,000	X	390
T	8,000	OTHER VOCs	<MDL
X	296,000	OTHER VOCs	<MDL

S-21		S-21	
3/24/2015		3/24/2015	
12.0 - 13.0'		12.0 - 13.0'	
VOCs	<MDL	VOCs	<MDL

S-28		S-28	
1/6/2016		1/6/2016	
6.0 - 7.0'		6.0 - 7.0'	
PCE	170	OTHER VOCs	<MDL

S-14R		S-14R	
3/23/2015		3/23/2015	
19.0 - 20.0'		19.0 - 20.0'	
VOCs	<MDL	VOCs	<MDL

S-29		A-2 (DUP)	
1/6/2016		1/6/2016	
7.0 - 8.0'		7.0 - 8.0'	
VOCs	<MDL	VOCs	<MDL

S-22		S-22	
3/24/2015		3/24/2015	
12.0 - 13.0'		12.0 - 13.0'	
VOCs	<MDL	VOCs	<MDL

S-30		A-3 (DUP)	
1/6/2016		1/6/2016	
7.0 - 8.0'		7.0 - 8.0'	
VOCs	<MDL	VOCs	<MDL

S-23		S-23	
3/24/2015		3/24/2015	
12.0 - 13.0'		12.0 - 13.0'	
VOCs	<MDL	VOCs	<MDL

S-31		S-31	
1/6/2016		1/6/2016	
7.0 - 8.0'		7.0 - 8.0'	
PCE	710	OTHER VOCs	<MDL

EXCAVATED		S-12	
11/21/2014		11/21/2014	
7.0 - 8.0'		14.0 - 15.0'	
E	1,590	X	200
X	14,480	OTHER VOCs	<MDL

EXCAVATED		S-6	
11/20/2014		11/20/2014	
10.0 - 11.0'		14.0 - 15.0'	
E	9,800	E	120
ISOP	11,500	ISOP	490
T	800	OTHER VOCs	<MDL
X	84,500	OTHER VOCs	<MDL

EXCAVATED		S-1	
11/13/2014		11/13/2014	
12.0 - 13.0'		14.0 - 15.0'	
E	125,000	E	250
ISOP	4,000	X	1,200
X	487,000	OTHER VOCs	<MDL
OTHER VOCs	<MDL	OTHER VOCs	<MDL

EXCAVATED		S-4	
11/13/2014		11/13/2014	
7.0 - 8.0'		14.0 - 15.0'	
E	97,000	E	120
ISOP	4,000	MIBK	37,400
MIBK	28,000	X	400
PCE	2,000	OTHER VOCs	<MDL
X	429,000	OTHER VOCs	<MDL

EXCAVATED		S-4 (DUP)	
11/13/2014		11/13/2014	
7.0 - 8.0'		14.0 - 15.0'	
E	97,000	E	120
ISOP	4,000	MIBK	37,400
MIBK	28,000	X	400
PCE	2,000	OTHER VOCs	<MDL
X	429,000	OTHER VOCs	<MDL

EXCAVATED		S-2	
11/13/2014		11/13/2014	
7.0 - 8.0'		14.0 - 15.0'	
ACETONE	652,000	ACETONE	592,000
E	107,000	E	295,000
MIBK	158,000	MIBK	196,000
X	523,000	X	1,309,000
OTHER VOCs	<MDL	OTHER VOCs	<MDL

EXCAVATED		S-2 (DUP)	
11/13/2014		11/13/2014	
7.0 - 8.0'		14.0 - 15.0'	
E	107,000	E	295,000
MIBK	158,000	MIBK	196,000
X	523,000	X	1,309,000
OTHER VOCs	<MDL	OTHER VOCs	<MDL

EXCAVATED		S-2	
11/13/2014		11/13/2014	
7.0 - 8.0'		14.0 - 15.0'	
E	107,000	E	295,000
MIBK	158,000	MIBK	196,000
X	523,000	X	1,309,000
OTHER VOCs	<MDL	OTHER VOCs	<MDL

EXCAVATED		S-7	
11/20/2014		11/20/2014	
12.0 - 13.0'		14.0 - 15.0'	
E	4,400	ISOP	660
ISOP	3,500	X	200
X	7,000	OTHER VOCs	<MDL

EXCAVATED		S-8	
11/20/2014		11/20/2014	
12.0 - 13.0'		14.0 - 15.0'	
E	6,700	X	200
X	76,000	OTHER VOCs	<MDL

EXCAVATED		S-9	
11/20/2014		11/20/2014	
7.0 - 8.0'		14.0 - 15.0'	
VOCs	<MDL	VOCs	<MDL

EXCAVATED		S-9 (DUP)	
11/20/2014		11/20/2014	
7.0 - 8.0'		14.0 - 15.0'	
VOCs	<MDL	VOCs	<MDL

EXCAVATED		S-17	
3/23/2015		3/23/2015	
7.0 - 8.0'		14.0 - 15.0'	
VOCs	<MDL	VOCs	<MDL

EXCAVATED		S-24	
12/8/2015		12/8/2015	
7.0 - 8.0'		7.0 - 8.0'	
E	1,940		
n-PROP	160		
1,2,3-TMB	160		
1,2,4-TMB	650		
1,3,5-TMB	510		
X	10,750		
OTHER VOCs	<MDL		

EXCAVATED		S-16	
11/13/2014		11/13/2014	
7.0 - 8.0'		14.0 - 15.0'	
PCE	110	VOCs	<MDL