PSCM SP1 Chamblissburg Supply PC# 2017-2298

GREENE ENVIRONMENTAL SERVICES LLC.

POST
SITE CHARACTERIZATION
MONITORING REPORT
SUB-PHASE 1

Chamblissburg Supply
10625 Stewartsville Road
Vinton, Virginia 24179

PC# 2017-2298
Greene Project# CSVI1004

December 20 2019

DEQ Case Manager:
Mr. Robert L. Howard

POST SITE CHARACTERIZATION
MONITORING REPORT
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Chamblissburg Supply
10625 Stewartsville Road
Vinton, Virginia 24179
PC 2017-2298

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December 20, 2019
Greene Job Number: CSVI1004

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EXECUTIVE SUMMARY

Post Site Characterization Monitoring Report Sub-Phase 1

Based on the findings of the Site Characterization Report Addendum (SCRA), the Virginia Department of Environmental Quality (VA DEQ) requested Post Site Characterization Monitoring Sub-Phase 1 (PSCM SP1) activities be performed at the Chamblissburg Supply facility. During the PSCM SP1 phase of work the former property owner coordinated the removal of the two underground storage tank (UST) systems located at the subject site. During closure activities, a petroleum release was confirmed associated with the gasoline UST system. In addition, a second petroleum release was confirmed associated with the kerosene/diesel fuel UST system. In an effort to reduce the onsite sources of contamination, a total of 312.31 tons of petroleum impacted soils have been removed from the site and disposed of at a treatment facility.

To date, vapor phase, residual phase, dissolved phase, and free phase petroleum contamination have been encountered in the subsurface at the Chamblissburg Supply facility. During this phase of investigation, measurable free product thicknesses ranging from 0.11 feet to 0.67 feet were observed within groundwater monitoring well MW03. Based on the free product thicknesses, two vacuum truck recovery events were performed and approximately 732 gallons of petroleum impacted groundwater was recovered. Groundwater samples collected from the shallow groundwater monitoring wells (MW01-MW04 and MW09-MW11) confirmed the presence of dissolved phase petroleum contamination in the shallow groundwater aquifer. In addition, drinking water samples collected from supply wells DW01A, DW02A, DW03A, DW04A, DW05A, DW06C, and DW07A yielded evidence of petroleum impact. However, groundwater samples collected from the deep water monitoring wells MW12, MW13, and MW14 yielded Non Detected for chemicals typically associated with petroleum contamination. Relative groundwater elevations within the 11 shallow groundwater monitoring wells as measured during this phase of investigation depict a general hydraulic gradient primarily to the east-southeast and Isoconcentration Maps generated during this phase of investigation appear to indicate the shallow water dissolved phase plume also is migrating to the east-southeast. Limited fate and transport modeling of the shallow water contamination indicates the potential for a 417 feet dissolved phase plume.

Due to the presence of free phase petroleum, significant dissolved phase contamination onsite, and impact to onsite and offsite sensitive receptors, Greene Environmental Services, LLC (Greene) continues to recommend additional work be performed at the subject site. During the previous phase of work, Greene recommended converting the deep groundwater monitoring wells (MW12-MW14) to supply wells for use at the Chamblissburg Supply, former Dudley Property, and the Farkas Residence. In addition, Greene previously recommended installing a deep water monitoring well on the Houck property. VA DEQ personnel approved these activities as part of Interim Authorization Corrective Action Plan (IA CAP) activities. Summaries of the conversion of deep water monitoring wells to supply wells, the installation of a potential replacement supply well at the Houck property, and recommendations associated with obtaining alternate water supplies to impacted supply wells will be provided in the IA CAP report.

Based on the presence of free phase petroleum, significant dissolved phase petroleum, and the potential risk to offsite supply wells, Greene recommends additional activities be performed at the subject site. Specifically, Greene recommends additional onsite soil borings/shallow groundwater monitoring wells be installed within the former gasoline dispenser island excavation area. During excavation activities, two 6-inch PVC sumps were installed to allow for installation of shallow groundwater monitoring wells within the suspected primary source of petroleum contamination. Installation of the well(s) within the suspected gasoline source will allow for further delineation of the observed residual phase, shallow groundwater dissolved phase, and free phase petroleum contamination. In addition, Greene recommends the performance of activities to determine the appropriate long-term remedial recommendation for the subject site. The limited data obtained during the vacuum truck recovery events performed during this phase of investigation appears to indicate that dual-phase extraction (DPE) remediation will effectively reduce the vapor phase, free phase, residual phase, and dissolved phase contamination identified onsite. However, Greene recommends the performance of a two week pilot study to confirm the technology effectiveness and collect necessary data for long term system design and the preparation of applicable discharge permit applications.

This Executive Summary is an integral part of the Post Site Characterization Monitoring Report Sub-Phase 1. Greene recommends that the report be read in its entirety.

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POST SITE CHARACTERIZATION
MONITORING REPORT
SUB-PHASE 1
for
Chamblissburg Supply
Vinton, VA

1.0 Introduction

On behalf of The Estate of Lacy Dudley, Greene Environmental Services, LLC (Greene) has prepared this Post Site Characterization Monitoring Report Sub-Phase 1 (PSCM SP1) for the Chamblissburg Supply (dba Elei's) facility located at 10625 Stewartsville Road within Bedford County, Virginia. Subsequent to Greene's submittal of the Site Characterization Report Addendum (SCRA), the Virginia Department of Environmental Quality (VA DEQ) initially requested the preparation and submittal of an SCRA #2 in a letter dated January 28, 2019. However, the requested scope of work was revised by the VA DEQ subsequent to review of the SCRA #2 Activity Authorization Form (AAF) submitted on March 6, 2019. In an email dated April 25, 2019, the VA DEQ requested that Interim Authorization Corrective Action Plan (IA CAP) and Post Site Characterization Monitoring Report Sub-Phase 1 activities be conducted at the site. This report documents the PSCM SP1 activities performed at the Chamblissburg Supply facility. A comprehensive summary of Pollution Complaint (PC) #2017-2298 is provided in Section 3.0 of this report.

Please note, in June 2019 the Chamblissburg Supply property was sold to Mr. Elei Safar. Based on the sale of the property, Greene obtained a site access agreement from Mr. Safar to continue the onsite performance of PC #2017-2298 activities. A copy of the site access agreement is provided in Appendix F of this report.

2.0 Site Assessment

2.1 Site Location and Description

The subject property is an approximately 3.5-acre parcel located at 10625 Stewartsville Road in a primarily residential area within the limits of Bedford County, Virginia. The subject site is improved with a single-story building that currently serves as the Chamblissburg Supply (dba Elei's). The subject site is further improved with a single-story building currently serving as the Stewartsville – Chamblissburg Volunteer Fire Department Station 2, three storage buildings, and asphalt, concrete, and gravel access and parking areas. It is believed that the site has operated as a retail gasoline station and convenience store from approximately 1978 to January 2019. During January 2019, the property owner at that time, the Lacy Dudley Estate, coordinated the removal of the regulated petroleum underground storage tank (UST) systems located at the property. The Chamblissburg Supply property formerly maintained one 4,000-gallon gasoline UST, two 5,000-gallon gasoline USTs, one 6,000-gallon gasoline UST, one 1,000-gallon diesel

fuel UST, one 1,000-gallon kerosene UST, three gasoline dispensers and associated canopy, one diesel fuel dispenser, and one kerosene dispenser, which were removed during closure activities performed in January 2019.

The subject site currently obtains potable water from an onsite drilled supply well (DW01B) located approximately 900 feet north-northeast of the former shared gasoline UST basin. Please note, during the IA CAP phase of work, deep water monitoring well MW13 was converted to potable supply well DW01B. A comprehensive summary of the conversion will be included in the IA CAP report requested by the VA DEQ. An additional onsite supply well (DW01A), located approximately 135 feet east of the former shared gasoline UST basin and approximately 70 feet east of the former shared diesel fuel and kerosene UST basin, previously provided potable water to the property. However, the plumbing from DW01A has been disconnected and the supply well is no longer in use. The site is bordered by Stewartsville Road to the southwest, the Beaverdam Baptist Church property to the northwest, an undeveloped wooded area to the northeast, and a residential parcel to the southeast. Table 1 - Summary of UST Information is included in Appendix A, Page 1. Copies of the Pre-Excavation Site Map (01/07/2019) and the Post-Excavation Site Map (01/10/2019) are included in Appendix A.

2.2 Topography

The subject site is located at 10625 Stewartsville Road within the limits of Bedford County, Virginia. According to the U.S. Geological Survey 7 ½ Minute Series Topographic Map of the Irving Quadrangle, Virginia, the site elevation is approximately 1,060 feet above mean sea level. At its closest point, the nearest identified surface water body is an unnamed intermittent tributary to East Fork Beaverdam Creek located approximately 700 feet to the northeast of the former shared gasoline UST basin and approximately 620 feet northeast of the former shared diesel fuel and kerosene UST basin. An aerial map and topographic map of the subject site are included in Appendix B.

2.3 Local Geology

Greene reviewed the Geologic Map of Virginia prepared by the Commonwealth of Virginia, Department of Mines, Minerals, and Energy. Published geologic information indicates that local geologic structures are primarily comprised of layered biotite granulite and gneiss. This rock formation is described in detail below:

> *Layered Biotite Granulite and Gneiss*: Leucocratic to mesocratic, segregation-layered quartzofeldspathic granulite and gneiss contain quartz, plagioclase (albite), microcline (includes assemblages with one alkali feldspar), biotite, ilmenite, and titanite; garnet and horn blende are commonly present. Accessory minerals include apatite and zircon. Epidote and white mica are

ubiquitous secondary minerals. Relict pyroxene, largely replaced by actinolitic amphibole, occurs locally. Segregation layering is defined by alternating quartzofeldspathic and biotite-rich domains on the order of a few millimeters to centimeters thick. Quartz and feldspar are granoblastic; biotite defines a penetrative schistosity that crosscuts segregation layering. Migmatitic leucosomes composed of alkali feldspar and blue quartz cut segregation layering, and locally define attenuated isoclinal folds.

The above description was obtained from the Geologic Map of Virginia – Expanded Explanation (1993).

3.0 Comprehensive Summary of Pollution Complaint #2017-2298

3.1 Initial Release Reporting

On June 5, 2017, Ms. Debra Farkas contacted the VA DEQ and reported suspected petroleum in the drinking water well providing potable water to her property addressed as 10590 Stewartsville Road within Bedford County, Virginia. Based on the suspected impact by petroleum, a VA DEQ State Lead contractor collected a drinking water sample from the Farkas supply well (DW02A) on June 5, 2017. Laboratory analytical results yielded total petroleum hydrocarbons-gasoline range organics (TPH-GRO), benzene, and methyl-tert butyl ether (MTBE) concentrations of 994 micrograms per liter (µg/L), 2.91 µg/L, and 138 µg/L, respectively. Further, isopropyl ether (DIPE), 1,2-dichloroethane, and 1,2,4-trimethylbenzene concentrations of 8.55 µg/L, 23.1 µg/L, and 9.04 µg/L, respectively, were observed in the water sample collected on June 5, 2017.

Subsequent to receiving the results on June 8, 2017, the State Lead contractor reported the release to the Blue Ridge Regional Office (BRRO) of the VA DEQ on June 9, 2017. In a letter dated June 12, 2017, the BRRO of the VA DEQ issued the Chamblissburg Supply facility PC #2017-2298 and requested that Release Investigation and Reporting (RIR) be conducted at the site.

3.2 Release Investigation Activities

During the RIR phase of work, no known compliance issues were noted and no indications of an ongoing release were observed. The cathodic protection system passed testing performed in October 2016. Further, tank release detection data yielded passing tests on all six tanks and tank tightness testing performed on June 28, 2017 was unable to identify leaks from the tanks. However, due to the suspected presence of check valves at the tanks, the product lines were unable to be tightness tested during RIR activities. Historical research performed during the Release Investigation phase of work indicated the VA DEQ noted multiple compliance issues at the site between 1978, the date of tank installation, and 2015. In addition, limited residual phase petroleum contamination was observed during a baseline environmental assessment

performed in 2002. However, historical research indicated no prior Pollution Complaint cases were opened at the facility and the compliance issues appeared to have been properly addressed. A copy of the Tank Tightness Report dated June 28, 2017 is included in Appendix F of this report.

On June 16, 2017, a ¼-mile radius receptor survey was performed to identify potential receptors to the confirmed petroleum contamination. During RIR activities, 36 drilled, bored, or hand dug supply wells and one pond were observed during the receptor survey. Groundwater samples collected from the onsite supply well (DW01A) and offsite supply wells DW02A, DW03A, DW04A, DW05A, and DW07A yielded evidence of petroleum contamination and carbon filtration units (CFUs) were installed as part of the VA DEQ alternate water supply (AWS) program. Table 8 - Summary of Supply Well Dissolved Phase Analytical Results is included in Appendix A, Page 27. Table 14 - Summary of the Receptor Survey Results is included in Appendix A, Page 45. The locations of the potential receptors are included on the Potential Receptors Location Map provided in Appendix B.

Further, during RIR activities, 15 soil borings (B01-B15) were installed proximal to the UST systems located at the Chamblissburg Supply facility. Soil samples collected from soil borings installed proximal to the gasoline UST system yielded TPH-GRO concentrations above the 8,300 milligrams per kilogram (mg/kg) value recognized by the VA DEQ as indicating gasoline saturation. The locations of soil borings installed during the Release Investigation phase of work are included on the soil boring location maps provided in Appendix B. Soil Boring Logs are provided as Appendix C. Table 2 - Summary of Field Screening Results is included in Appendix A, Page 2. Table 3 - Summary of Soil Boring Residual Phase Analytical Results is included in Appendix A, Page 9. Subsequent to completion of the release investigation phase of work, a copy of the RIR dated August 3, 2017 was submitted to the VA DEQ.

3.3 Site Characterization Report Activities

During the SCR phase of work, tank and line tightness testing activities yielded evidence of a leak in the premium gasoline product line proximal to the gasoline dispenser. Subsequent to confirming the leak in the premium gasoline product line on September 22, 2017 this UST system was placed out of use and no longer utilized. It should be noted the check valve located on the plus gasoline product line was believed to be an inline check valve, which had been installed underground. As a result, the plus gasoline product line was unable to be tested during the SCR phase of investigation. A copy of the Tank Tightness reported dated October 17, 2017 is included in Appendix F of this report.

Further, during SCR activities, 11 soil borings (B16-B26) were installed and converted to shallow groundwater monitoring wells MW01-MW11. In addition, aquifer characterization, geologic and geophysical analysis, and sampling activities were performed. Analytical results of the soil samples submitted from soil borings B17 and B22 yielded Non Detected at laboratory method detection limits (MDLs), while analytical results of soil samples from borings B16, B20, B21, B23, and B26 yielded evidence of limited residual phase petroleum contamination. However, analytical results of soil samples collected from B18, B19, B24, and B25 yielded evidence of significant petroleum contamination. The locations of the soil borings and monitoring wells are included on the Soil Boring Location Maps and Monitoring Well Location Maps provided in Appendix B. Table 2 - Summary of Field Screening Results is included in Appendix A, Page 2. Table 3 - Summary of Soil Boring Residual Phase Analytical Results is included in Appendix A, Page 9. Soil Boring Logs are included on the Soil Boring Logs/Monitoring Well Construction Diagrams provided as Appendix C.

Subsequent to installation of the groundwater monitoring wells, Greene performed aquifer characterization activities. A potentiometric surface map generated from the relative elevations of equilibrated groundwater measured during SCR activities depicted a primarily east-southeast hydraulic gradient. Table 4 - Summary of Groundwater Elevation Data is included in Appendix A, Page 13. Potentiometric surface maps generated from the relative elevations of equilibrated groundwater as measured during SCR activities on October 10, 2017 are included in Appendix B. Additional aquifer characterization included the performance of pump-down rising head tests on monitoring wells MW01 and MW11. The pump-down tests yielded calculated MW01 and MW11 hydraulic conductivity values of 0.6893 feet per day (ft/day) and 0.9199 ft/day, respectively. The tests also yielded a calculated transmissivity value for MW01 of 46.00 gallons per day per foot (gal/day/ft) and 69.98 gal/day/ft for MW11. Further aquifer characterization included the performance of limited fate and transport modeling. SCR BIOSCREEN-AT modeling data estimated the total benzene, toluene, ethylbenzene, and xylenes (BTEX), MTBE, and naphthalene plume to be approximately 507 feet in length. SCR Super Slug™ Test Data & Graphical Representations obtained during the SCR phase of investigation are provided as Appendix E. SCR BIOSCREEN-AT Modeling Input Data and Graphical Representations are included in Appendix G.

As requested, a fracture trace analysis and geophysical well logging were performed during SCR activities in an attempt to identify supply well construction details, water-bearing zones, foliations, fractures, and additional subsurface characteristics, which may be influencing the migration of groundwater in the area. Greene contracted Draper Aden Associates (DAA) of Blacksburg, VA to perform a fracture trace analysis in an attempt to identify subsurface characteristics that may be influencing the migration of dissolved phase petroleum contamination to the onsite and offsite petroleum impacted drinking water wells. Results of the

analysis yielded three primary sets of fracture trace orientations with the west-east and northeast-southwest sets being closest to the subject site. The study did not identify any direct fracture pathways between the onsite dissolved phase petroleum contamination and the impacted supply wells. A copy of the fracture trace analysis prepared by DAA is provided in Appendix C.

Further, Greene contracted ARM Geophysics (ARM) of Hershey, PA to perform geophysical well logging of impacted supply wells DW01A, DW02A, DW03A, DW04A, and DW04B. Geologic and geophysical analysis activities performed during the SCR did not yield evidence of any direct fracture pathways between the onsite dissolved phase petroleum contamination and the impacted supply wells. In addition, geophysical borehole logging and discrete sampling of impacted supply wells (DW01A and DW04A) during the SCR phase of investigation did not indicate the well seals at the casing/bedrock interface to be allowing commingling of the shallow and deep water aquifers. Discrete sampling performed at DW01A yielded an increase in dissolved phase petroleum contamination with depth, likely indicating petroleum impact is from a deep aquifer water-bearing zone/fracture. A copy of the geophysical borehole logging report prepared by ARM is provided in Appendix C. A Geophysical Borehole Logging Summary Map documenting the dip direction and dip of features identified is provided in Appendix B. Table 10 - Summary of Supply Well Discrete Sampling Dissolved Phase Analytical Results is included in Appendix A, Page 39.

During the SCR phase of work, measurable free product was observed in monitoring well MW04. Groundwater samples collected from the onsite monitoring wells (MW01-MW04 and MW09-MW11) during the SCR phase of investigation confirmed the presence of dissolved phase petroleum contamination in the shallow groundwater aquifer. In addition, drinking water samples collected from supply wells DW01A, DW02A, DW03A, DW04A, DW05A, and DW07A continued to yield evidence of petroleum impact. Further, limited petroleum contamination was observed within the unnamed intermittent tributary to East Fork Beaverdam Creek. Table 5 - Summary of Free Product Thicknesses is included in Appendix A, Page 21. Table 7 - Summary of Monitoring Well Dissolved Phase Analytical Results is included in Appendix A, Page 24. Table 8 - Summary of Supply Well Dissolved Phase Analytical Results is included in Appendix A, Page 27. Table 9 - Summary of Surface Water Dissolved Phase Analytical Results is included in Appendix A, Page 38. The locations of the surface water samples are included on the Surface Water Samples Location Map provided in Appendix B. Copies of the Isoconcentration maps generated during SCR activities are provided in Appendix B.

Subsequent to completion of the site characterization phase of work, a copy of the SCR dated February 2, 2018 was submitted to the VA DEQ.

3.4 Site Characterization Report Addendum Activities

Based on the finding of the SCR, the VA DEQ requested SCRA activities be performed at the Chamblissburg Supply facility. As part of SCRA activities, monthly gauging events, a vacuum truck free product recovery event, deep water monitoring well installation, soil and groundwater sampling, aquifer characterization, and limited fate and transport modeling activities were performed. Potentiometric surface maps generated from the relative elevations of equilibrated shallow groundwater measured during SCRA activities depicted a primarily east-southeast hydraulic gradient. Table 4 - Summary of Groundwater Elevation Data is included in Appendix A, Page 13. Potentiometric surface maps generated from the relative elevations of equilibrated groundwater as measured during SCRA activities are included in Appendix B.

Additional aquifer characterization included the performance of pump-down rising head tests on monitoring wells MW02 and MW08. The pump-down tests yielded calculated MW02 and MW08 hydraulic conductivity values of 0.4530 ft/day and 0.2988 ft/day, respectively. The tests also yielded a calculated transmissivity value for MW02 of 26.94 gal/day/ft and 15.65 gal/day/ft for MW08. Further aquifer characterization included the performance of limited fate and transport modeling. SCRA BIOSCREEN-AT modeling data estimated the total BTEX, MTBE, and naphthalene plume to be approximately 347 feet in length. Super Slug^{TM} Test Data & Graphical Representations obtained during the SCRA phase of investigation are provided as Appendix E. SCRA BIOSCREEN-AT Modeling Input Data and Graphical Representations are included in Appendix G.

Further, during SCR activities, three soil borings (B27-B29) were installed and converted to deep water monitoring wells MW12-MW14. The borings were installed in locations anticipated to be outside of the dissolved phase plume and were installed to Virginia Department of Health specifications for a Class IIIB supply well. Analytical results of the soil samples submitted from soil borings B27-B29 yielded Non Detected at laboratory MDLs. In addition, limited activities were performed to allow for the installation of a deep water monitoring well on the Houck Property during the next phase of work. Due to the limited site access, a small excavator, chainsaw, and hand tools were utilized to perform grading and tree removal along the access road and proximal to the proposed Houck Property deep water monitoring well location. The locations of the soil borings and monitoring wells are included on the Soil Boring Location Maps, Monitoring Well Location Maps, and Deep Groundwater Monitoring Well Location Map provided in Appendix B. Table 2 - Summary of Field Screening Results is included in Appendix A, Page 2. Table 3 - Summary of Soil Boring Residual Phase Analytical Results is included in Appendix A, Page 9. Soil Boring Logs are included on the Soil Boring Logs/Monitoring Well Construction Diagrams provided as Appendix C.

During the SCRA phase of work, measurable free product was observed in monitoring well MW03. The maximum free product thickness observed during this phase of investigation was 0.45 feet within MW03 on May 29, 2018. Based on this free product thickness, a vacuum truck recovery event was performed on June 11, 2018. The vacuum truck event recovered approximately 385 gallons of petroleum impacted groundwater. Finally, a groundwater sampling event was performed as part of the SCRA phase of investigation. Groundwater samples collected from shallow groundwater monitoring wells MW01-MW05 and MW08-MW11 yielded measurable dissolved phase petroleum contamination. In addition, drinking water samples collected from supply wells DW01A, DW02A, DW03A, DW04A, DW05A, and DW07A continued to yield evidence of petroleum impact. However, surface water samples and groundwater samples collected from the deep water monitoring wells (MW12-MW14) yielded Non Detected for chemicals typically associated with petroleum contamination. Table 5 - Summary of Free Product Thicknesses is included in Appendix A, Page 21. Table 7 - Summary of Monitoring Well Dissolved Phase Analytical Results is included in Appendix A, Page 24. Table 8 - Summary of Supply Well Dissolved Phase Analytical Results is included in Appendix A, Page 27. Table 9 - Summary of Surface Water Dissolved Phase Analytical Results is included in Appendix A, Page 38. The locations of the surface water samples are included on the Surface Water Samples Location Map provided in Appendix B. Copies of the Isoconcentration maps generated during SCRA activities are provided in Appendix B.

Subsequent to completion of the site characterization report addendum phase of work, a copy of the SCRA dated December 20, 2018 was submitted to the VA DEQ.

4.0 Post Site Characterization Monitoring Report Activities

As stated in Section 1.0 of this report, based on review of the SCRA, the VA DEQ requested that Interim Authorization Corrective Action Plan and Post Site Characterization Monitoring Report Sub-Phase 1 activities be conducted at the site. This report documents the requested PSCM SP1 activities performed at the Chamblissburg Supply. This phase of work included monthly gauging events to confirm the presence or absence of free product, vacuum truck free product recovery events, contaminated soil excavation and disposal, soil and groundwater sampling, aquifer characterization, and limited fate and transport modeling. A summary of the activities performed at the Chamblissburg Supply during this phase of investigation is provided in the following sections. Due to the nature of this project, multiple activities were performed over a span of several months. In order to clarify the order of events, a timeline outlining the activities has been provided below:

Timeline of PSCM SP1 Events

December 21, 2018:	• A monitoring well gauging event was performed.
January 4, 2019:	• An AWS subcontractor collected a sample from the Franklin Residence onsite supply well.
January 5, 2019:	• Greene contracted Environmental Solutions to perform tightness testing on the plus gasoline product line. • Attempts to perform tightness testing were unsuccessful.
January 7, 2019:	• Environmental Solutions again attempted to perform tightness testing on the plus gasoline product line; however, the attempts were unsuccessful. • Paul R. Shively, Inc. (PRS) initiated UST closure activities. • R.E.M. Specialties, LLC (REM) removed remaining liquids from the onsite USTs for disposal. • The gasoline, diesel fuel, and kerosene dispensers, dispenser islands, piping, and USTs were removed for disposal. • Greene collected UST closure soil samples.
January 8, 2019- January 10, 2019:	• Greene coordinated and oversaw removal of contaminated soils from the diesel fuel, kerosene, and gasoline UST systems. • Greene collected soil samples documenting soil excavation activities. • Greene treated the gasoline excavation with a bacterial consortium. • Greene installed two sumps within the gasoline excavation area. • PRS performed backfilling activities.
January 23, 2019:	• VA DEQ personnel informed Greene that the supply well sample collected from the onsite Franklin Residence supply well (DW06C) on January 4, 2019 yielded petroleum contamination.
January 28, 2019:	• A monitoring well gauging event was performed. • Date of the VA DEQ letter requesting SCRA #2 activities be performed.
February 7, 2019:	• Greene collected a confirmation sample from the onsite Franklin Residence supply well (DW06C).
February 22, 2019:	• Greene received analytical results for the February 7, 2019 supply well sample from the Franklin Residence, which yielded petroleum contamination.
February 28, 2019:	• A monitoring well gauging event was performed.
March 4, 2019:	• Greene repaired the concrete well pad for MW04, which had been damaged during UST closure/soil excavation activities.
March 6, 2019:	• Greene submitted the Activity Authorization Form (AAF) for SCRA #2 activities.
March 20, 2019:	• A monitoring well gauging event was performed.

April 25, 2019:
- VA DEQ email requesting changes to the submitted SCRA #2 AAF.
- VA DEQ requested Post Site Characterization Monitoring and Interim Authorization Corrective Action Plan activities be performed.

April 29, 2019:
- A monitoring well gauging event was performed.

May 29, 2019:
- A monitoring well gauging event was performed.

June 17, 2019:
- A monitoring well gauging event was performed.

July 22, 2019:
- A monitoring well gauging event was performed.
- A free product thickness of 0.27 feet was observed within MW03.
- Greene reported the free product thickness to the VA DEQ.

August 12, 2019:
- A vacuum truck recovery event was performed at monitoring well MW03.
- A total of 197 gallons of petroleum impacted groundwater was recovered during the vacuum truck event.

September 27, 2019:
- A monitoring well gauging event was performed.
- A free product thickness of 0.27 feet was observed within MW03.
- Greene reported the free product thickness to the VA DEQ.

October 14, 2019:
- Greene performed a monitoring well, supply well, and surface water sampling event.

October 18, 2019:
- A vacuum truck recovery event was performed at monitoring well MW03.
- A total of 535 gallons of petroleum impacted groundwater was recovered during the vacuum truck event.

November 18, 2019:
- A monitoring well gauging event was performed.
- A free product thickness of 0.11 feet was observed within MW03.

November 18, 2019:
- Greene collected drinking water samples from offsite supply wells DW08A and DW08B.

December 3, 2019:
- Greene generated and submitted drinking water results letters to the property owners of the supply wells sampled during PSCM SP1.

4.1 UST Closure Activities

A summary of the UST closure activities performed at the subject site is provided in the follow sections.

4.1.1 Pre-Excavation Activities

Prior to removal of the gasoline UST system, Greene contracted Environmental Solutions (ES) of Cloverdale, Virginia to perform tightness testing of the plus gasoline product line. On January 5 and January 7, 2019, ES attempted to perform a helium test on the plus gasoline product line. However, due to equipment limitations the helium testing was unable to be completed.

Paul R. Shively, Inc. was contracted to remove the kerosene UST, diesel fuel UST, four gasoline USTs, associated canopy, and fuel dispensers located at the Chamblissburg Supply facility. On January 3, 2019, PRS secured the necessary building permit from the Bedford County Department of Building Inspection. On January 7, 2019, PRS initiated UST closure activities. As part of UST closure activities, PRS personnel removed the concrete aprons located above the shared gasoline UST basin and the shared diesel fuel and kerosene UST basin. In addition, the kerosene dispenser, diesel fuel dispenser, three gasoline dispensers, and the associated concrete dispenser islands were removed. Finally, the canopy located above the former gasoline dispensers was removed. During pre-excavation activities associated with the gasoline UST system the well cover and concrete pad for monitoring well MW04 were damaged and removed to allow for UST closure activities. A copy of the Pre-Excavation Site Map (01/07/2019) is included in Appendix B. A copy of the building permit for UST closure from Bedford County is included in Appendix H.

4.1.2 Gasoline UST Closure Procedures

On January 7, 2019, PRS personnel initiated gasoline UST closure activities at the Chamblissburg Supply facility. Small and large excavators were utilized to remove the soil overburden above the four gasoline USTs to allow for tank removal. During excavation activities, the associated product line piping was removed from the gasoline excavation area. The regular and plus gasoline product piping was observed to be steel and the premium gasoline product piping was observed to be fiberglass. Inspection of the product piping did not yield evidence of any obvious holes; however, a petroleum odor was observed within the overburden proximal to the 4,000-gallon plus gasoline UST (UST #3) and the 6,000-gallon regular gasoline UST (UST #5). Excavated material was screened through visual and olfactory observations and contaminated soil was segregated and temporarily stockpiled on plastic sheeting pending disposal. The clean overburden material was temporarily stockpiled adjacent to the shared gasoline UST basin to be later utilized as backfill.

Subsequent to removing the overburden, the 4,000-gallon plus gasoline UST (UST #3) was removed from the ground and temporarily staged onsite for inspection. Inspection of UST #3 yielded evidence of pitting and corrosion and indicated that the tank had been lined with fiberglass; however, no obvious holes were observed. Subsequent to removal of UST #3, the large excavator was then utilized to remove the 6,000-gallon regular gasoline UST (UST #5) from the ground. Inspection of UST #5 yielded evidence of pitting and corrosion; however, no obvious holes were observed. Following removal of UST #5, the large excavator was then utilized to remove the 5,000-gallon regular gasoline UST (UST #6) from the ground. Inspection of UST #6 yielded evidence of pitting and corrosion; however, no obvious holes were observed. Finally, the large excavator was then utilized to remove the 5,000-gallon premium gasoline UST (UST #4) from the ground. Inspection of UST #4 yielded evidence of pitting and corrosion; however, no obvious

holes were observed. Following inspection, the gasoline USTs were loaded onto PRS trailers for transport and disposal. Copies of the Tank Disposal Manifest for the four gasoline USTs and the Notification for Underground Storage Tanks closure form (Form 7530-3) are included in Appendix H. Photographic documentation of the UST closure activities is included in Appendix I. Table 1 - Summary of UST Information is included in Appendix A, Page 1.

During UST closure activities, a vacuum truck under contract with R.E.M. Specialties, LLC (R.E.M.) was utilized to remove approximately 560 gallons of liquid from the four gasoline USTs. The recovered liquids were retained for disposal by R.E.M. A copy of the vacuum truck Material Manifest for the 560-gallons of liquid recovered during gasoline UST closure activities from R.E.M. is included in Appendix H.

4.1.3 Kerosene/Diesel Fuel UST Closure Procedures

On January 7, 2019, PRS personnel initiated kerosene and diesel fuel UST closure activities at the Chamblissburg Supply facility. Small and large excavators were utilized to remove the soil overburden above the kerosene and diesel fuel USTs to allow for tank removal. During excavation activities, the fill port riser for the diesel fuel UST was observed to be constructed of 4-inch schedule 40 PVC piping. Further during excavation activities, the associated product line piping was removed from the shared kerosene and diesel fuel UST basin. The kerosene and diesel fuel product piping was observed to be steel and inspection of the piping did not yield evidence of any obvious holes. However, a petroleum odor was observed within the overburden from the shared UST basin. Excavated material was screened through visual and olfactory observations and contaminated soil was segregated and temporarily stockpiled on plastic sheeting pending disposal. The clean overburden material was temporarily stockpiled adjacent to the shared kerosene and diesel fuel UST basin to be later utilized as backfill.

Subsequent to removing the overburden, the 1,000-gallon diesel fuel UST (UST #2) was removed from the ground and temporarily staged onsite for inspection. Inspection of UST #2 yielded evidence of pitting and corrosion as well as one small hole located on the top of the diesel fuel tank. Subsequent to removal of UST #2, the large excavator was then utilized to remove the 1,000-gallon kerosene UST (UST #1) from the ground. Inspection of UST #1 yielded evidence of pitting and corrosion; however, no obvious holes were observed. Following inspection, the diesel fuel and kerosene USTs were loaded onto PRS trailers for transport and disposal. Copies of the Tank Disposal Manifest for the kerosene and diesel fuel USTs and the Notification for Underground Storage Tanks closure form (Form 7530-3) are included in Appendix H. Photographic documentation of the UST closure activities is included in Appendix I. Table 1 - Summary of UST Information is included in Appendix A, Page 1.

During UST closure activities, a vacuum truck under contract with R.E.M. of Hardy, Virginia was utilized to remove approximately 165 gallons of liquid from the kerosene and diesel fuel USTs. The recovered liquids were retained for disposal by R.E.M. A copy of the vacuum truck Material Manifest for the 165-gallons of liquid recovered during kerosene and diesel fuel UST closure activities from R.E.M. is included in Appendix H.

4.2 Petroleum Impacted Soil Excavation Activities

Based on the confirmed residual, dissolved, and free phase petroleum observed during previous phases of investigation, combined with the evidence of residual phase contamination observed during UST closure activities, the VA DEQ approved the removal and disposal of petroleum impacted soil at the Chamblissburg Supply facility. Removal, transport, and disposal of petroleum impacted material were incorporated into a verbal scope of work, which was developed during VA DEQ site visits on January 7 and January 10, 2019. Based on observed site conditions, there were two distinct releases at the subject site. The first release at the facility is associated with the gasoline UST system and appeared to be the result of a leaking product line. During the previous phases of investigation, a line leak was confirmed within the premium gasoline piping proximal to the dispenser/dispenser island. The presence of petroleum impacted material within the overburden proximal to the two gasoline USTs located adjacent to the dispenser island, UST #3 and UST #5, further confirms a release proximal to the gasoline dispensers. Based on site observations, significant residual phase contamination continued vertically beneath the gasoline dispenser island and is believed to be the source of the impacted soil located beneath the southwest end of UST #3. However, as previously mentioned UST #3 had been lined with fiberglass. Although review of historical data did not indicate a reason the fiberglass lining was installed.

The second release is associated with the kerosene and diesel fuel UST system. Evidence of petroleum contamination was observed below the kerosene and diesel fuel dispensers and within the overburden associated with this separate basin. Due to the location and depth of the observed contamination this release was likely the result of a dispenser/product piping leak. However, it should be noted a small hole was observed on top of the diesel fuel UST.

A summary of the soil excavation activities associated with the two confirmed separate releases at the Chamblissburg Supply is provided in the following sections.

4.2.1 Gasoline UST System Excavation Activities

UST closure procedures are discussed in section 4.1.3 and will not be discussed during this section. During removal of the 4,000-gallon plus gasoline UST (UST #3) and 6,000-gallon regular gasoline UST (UST #5)

the overburden material exhibited evidence of significant petroleum contamination. The petroleum impacted overburden was temporarily stockpiled on plastic sheeting to allow for UST closure activities. In addition, a soil sample collected beneath UST #3 toward the dispenser island (southwest end) yielded evidence of significant petroleum contamination. Finally, significant petroleum contamination was observed beneath the shared gasoline dispenser island. As a result, from February 8 to February 10, 2019 PRS performed excavation of petroleum impacted soils associated with the gasoline UST system. The previously stockpiled impacted overburden was loaded into dump trailers and dump trucks under contract from Hilltop Mulch (Hilltop) of Wirtz, Virginia. Subsequent to loading the impacted overburden, excavation began adjacent to the former shared gasoline dispenser island. Please note, significant petroleum impacted soils were not observed beneath the gasoline USTs, with exception to the end of UST #3, which was located proximal to the dispenser island. Therefore, excavation associated with this UST system focused primarily on the former dispenser locations.

Excavation began on the northwest end of the former dispenser island and proceeded southeast approximately 21 feet. The excavation area was also expanded northeast and southwest to a total width of approximately six feet. The depth of the excavation was approximately 17.0 feet and was limited due to the onsite equipment. Excavated material was screened through visual and olfactory observations and contaminated soil was loaded into dump trailers or dump trucks under contract from Hilltop. Following the removal and loading of impacted soils from the gasoline UST system excavation basin into the Hilltop dump trailers/trucks, the soil was transported to Earthtec of NC, Inc. (Earthtec) in Sanford, North Carolina for disposal. Copies of the Non-Hazardous Waste Manifests for transport and disposal of approximately 285.26 tons of gasoline impacted material from Earthtec is included in Appendix H. The gasoline impacted material was combined with kerosene and diesel fuel impacted material and the exact volume of soil removed from this UST system is estimated.

Subsequent to excavation activities and the collection of soil samples (discussed in section 4.3.1), approximately 10 gallons of a bacterial consortium were applied to the gasoline UST system excavation area in an attempt to promote biodegradation of any remaining petroleum compounds. Prior to backfilling, two 6-inch PVC well casings were installed within the excavation area to allow for potential groundwater monitoring well installation subsequent to backfilling with #57 stone. Following installation of the well casings, clean overburden and #57 stone were utilized to backfill the former gasoline UST basin and excavation area to approximately 1.0 feet below ground surface (bgs). #21A pugmill material was then utilized to complete backfilling activities. A flush-mount well cover and concrete pad were later installed over monitoring well MW04.

There were no fire or safety hazards present during excavation activities. Greene determined the extent of excavation based on visual and olfactory evidence, as well as existing site conditions and equipment limitations. The majority of petroleum stained soils had been removed and no obvious indications of saturated petroleum soils remained. An estimated total of 285.26 tons of impacted material was recovered and disposed of from this UST system during this phase of investigation. A copy of the Post-Excavation Site Map (01/10/2019) is included in Appendix B. Photographic documentation of the excavation activities is included in Appendix I.

4.2.2 Kerosene/Diesel Fuel UST System Excavation Activities

UST closure procedures are discussed in section 4.1.2 and will not be discussed during this section. During removal of the 1,000-gallon kerosene UST and 1,000-gallon diesel fuel UST the overburden material was observed to be stained and exhibited evidence of significant petroleum contamination. The petroleum impacted overburden was temporarily stockpiled on plastic sheeting to allow for UST closure activities. In addition, soil samples collected beneath the kerosene and diesel fuel dispensers exhibited evidence of significant petroleum contamination. As a result, on February 8, 2019 PRS initiated excavation of petroleum impacted soils associated with the kerosene and diesel fuel UST system. The previously stockpiled overburden was loaded into dump trailers or dump trucks under contract from Hilltop of Wirtz, Virginia. Subsequent to loading the impacted overburden, excavation began adjacent to the former shared kerosene and diesel fuel dispenser island. Please note, significant petroleum impacted soils were not observed beneath the kerosene and diesel fuel USTs and excavation associated with this UST system was focused on the former dispenser locations.

Excavation began on the northeast end of the former dispenser island and proceeded southwest approximately 12 feet. The excavation area was also expanded northwest and southeast to a total width of approximately three feet. The depth of the excavation was approximately 8.5 feet and was limited due to the footer for the storage building located immediately adjacent to the northeast sidewall of the excavation. Excavated material was screened through visual and olfactory observations and contaminated soil was loaded directly into dump trailers or dump trucks under contract from Hilltop. Following the removal and loading of impacted soils from the kerosene and diesel fuel UST system excavation basin into the Hilltop dump trailers/trucks, the soil was transported to Earthtec in Sanford, North Carolina for disposal. Copies of the Non-Hazardous Waste Manifests for transport and disposal of approximately 27.05 tons of kerosene and diesel fuel impacted material from Earthtec is included in Appendix H. The kerosene and diesel fuel impacted material was combined with gasoline impacted material and the exact volume of soil removed from this UST system is estimated. Subsequent to the completion of excavation activities and the collection of soil samples (discussed in section 4.3.2), clean overburden and #57 stone were utilized to backfill the

former kerosene and diesel fuel UST basin and excavation area to approximately 1.0 feet bgs. #21A pugmill material was then utilized to complete backfilling activities.

There were no fire or safety hazards present during excavation activities. Greene determined the extent of excavation based on visual and olfactory evidence, as well as existing site conditions. The majority of petroleum stained soils had been removed; however, laboratory data indicates petroleum saturated soils remain on the floor of the dispenser excavation. Excavation of these soils is not recommended due to the presence of the footer for the storage building located immediately adjacent to the northeast sidewall of the kerosene and diesel fuel dispenser excavation area. An estimated total of 27.05 tons of impacted material was recovered and disposed of from this UST system during this phase of investigation. A copy of the Post-Excavation Site Map (01/10/2019) is included in Appendix B. Photographic documentation of the excavation activities is included in Appendix I.

4.3 Soil Sampling Activities & Laboratory Results

Summaries of the soil sampling and laboratory analytical results associated with the two separate releases at the subject site are provided in the following sections.

4.3.1 Gasoline UST System Soil Sampling & Laboratory Results

As part of gasoline UST closure and soil excavation activities 23 soil samples were collected at the Chamblissburg Supply facility. Soil samples were field screened using a Mini-Rae 3000 photoionization detector (PID) and visual and olfactory clues. The soil samples were stored on ice and those selected for analysis were entered onto a chain of custody document and transported via courier to the Pace Analytical Services (Pace) laboratory in Beaver, WV. The submitted soil samples were analyzed for TPH-GRO via EPA method 8015 and BTEX, MTBE, and naphthalene analysis via EPA method 8260.

Analytical results of soil samples collected during this phase of work confirmed the presence of subsurface petroleum contamination associated with the gasoline UST system release at the Chamblissburg Supply property. The soil samples document UST closure activities, the contamination levels of the soil removed, and the contamination levels of the remaining soils. Laboratory analytical results of the soil samples collected beneath the 5,000-gallon premium gasoline UST (UST #4), the 6,000-gallon regular gasoline UST (UST #5), and the 5,000-gallon regular gasoline UST (UST #6) yielded Non Detected for TPH-GRO. In addition, laboratory analytical results of soil samples collected beneath the 4,000-gallon plus gasoline UST (UST #3) yielded Non Detected for TPH-GRO, with exception to the soil sample collected from beneath the end located adjacent to the gasoline dispenser island. This soil sample yielded a TPH-GRO concentration of 2,800 mg/kg. Significant petroleum contamination was also observed in the soil sample

collected from the gasoline petroleum impacted overburden and in the soil samples collected from the gasoline dispenser excavation. Laboratory analytical results of the gasoline impacted overburden yielded a TPH-GRO concentration of 2,520 mg/kg and a soil sample collected from soils removed from the dispenser excavation yielded a TPH-GRO concentration of 1,520 mg/kg. Laboratory analytical results of soil samples collected from the floor of the gasoline dispenser excavation area yielded TPH-GRO concentrations ranging from 431 mg/kg to 1,070 mg/kg.

In addition, soil samples collected during excavation activities yielded limited BTEX, MTBE, and naphthalene concentrations. However, certain results were flagged with J qualifiers and are considered estimates due to the reported result being below the PQLs and equal to or above the MDLs. As a result, it is likely those specific analytes are present in the samples, but the results should be viewed only as qualitative and not quantitative. Copies of the laboratory results and chain of custody documentation are included in Appendix D. The locations of the soil samples are included on the PSCM SP1 UST Closure Soil Sample Location Map provided in Appendix B. Table 11 - Summary of the Gasoline UST Closure Analytical Results is included in Appendix A, Page 40.

4.3.2 Kerosene/Diesel Fuel UST System Soil Sampling & Laboratory Results

As part of kerosene and diesel fuel UST closure and soil excavation activities 11 soil samples were collected at the Chamblissburg Supply facility. Soil samples were field screened using a Mini-Rae 3000 PID and visual and olfactory clues. The soil samples were stored on ice and those selected for analysis were entered onto a chain of custody document and transported via courier to the Pace laboratory in Beaver, WV. The submitted soil samples were analyzed for total petroleum hydrocarbons-diesel range organics (TPH-DRO) via EPA method 8015 and BTEX, MTBE, and naphthalene analysis via EPA method 8260.

Analytical results of soil samples collected during this phase of work confirmed the presence of subsurface petroleum contamination associated with the kerosene/diesel fuel UST system release at the Chamblissburg Supply property. The soil samples document UST closure activities, the contamination levels of the soil removed, and the contamination levels of the remaining soils. Laboratory analytical results of the soil samples collected beneath the 1,000-gallon kerosene UST (UST #1) yielded a maximum TPH-DRO concentration of only 215 mg/kg. Further, laboratory analytical results of soil samples collected beneath the 1,000-gallon diesel fuel UST (UST #2) yielded Non Detected for TPH-DRO. However, the soil sample collected from the petroleum impacted overburden yielded a high TPH-DRO concentration of 5,260 mg/kg, and soil samples collected from beneath the kerosene and diesel fuel dispensers yielded TPH-DRO concentrations ranging from 794 mg/kg to 2,460 mg/kg. A soil sample collected from the floor of the dispenser excavation area approximately 8.5 feet bgs yielded a TPH-DRO concentration of 16,000 mg/kg,

which is above the 11,200 mg/kg and 11,000 mg/kg values recognized by the VA DEQ as indicating kerosene and diesel fuel saturation, respectively.

In addition, soil samples collected during excavation activities yielded limited BTEX, MTBE, and naphthalene concentrations. However, certain results were flagged with J qualifiers and are considered estimates due to the reported results being below the practical quantitation limits (PQLs) and equal to or above the MDLs. As a result, it is likely those specific analytes are present in the samples, but the results should be viewed only as qualitative and not quantitative. Copies of the laboratory results and chain of custody documentation are included in Appendix D. The locations of the soil samples are included on the PSCM SP1 UST Closure Soil Sample Location Map provided in Appendix B. Table 12 - Summary of the Kerosene & Diesel Fuel UST Closure Analytical Results is included in Appendix A, Page 42.

4.4 Groundwater Observations

During this phase of investigation, a Heron Instruments, Inc. or Solinst® electronic interface probe was utilized to measure the depth to shallow groundwater in the onsite and offsite monitoring wells on December 21, 2018 and January 28, February 28, March 20, April 29, May 29, June 17, July 22, August 12, September 27, October 14, October 18, and November 18, 2019. In addition, measurable free product thicknesses ranging from 0.11 feet to 0.67 feet were observed within groundwater monitoring well MW03 during the gauging events performed on July 22, August 12, September 27, October 14, October, 18, and November 18, 2019. Table 4 - Summary of Groundwater Elevation Data is included in Appendix A, Page 13. Table 5 – Summary of Free Product Thicknesses is included in Appendix A, Page 21.

Surfer mapping software was employed to generate the potentiometric surface contour array over the base map created in DesignCAD for the January 28, April 29, June 17, and October 14, 2019 gauging events. A minimum of pseudo data points were used and these were applied only when the kriging algorithm clearly interpolated the contour lines into certain regions where a paucity of data resulted in an unnatural contour distribution. When pseudo points were used, they were based on nearest neighbors. Suspected shallow groundwater flow at the site was determined from the relative groundwater elevations within monitoring wells MW01-MW11. The potentiometric surface maps generated from the relative elevations of equilibrated groundwater as measured on January 28, April 29, June 17, and October 14, 2019 are included in Appendix B. Relative shallow groundwater elevations within the 11 monitoring wells as measured during this phase of investigation primarily depict a general hydraulic gradient to the east-southeast.

4.5 Aggressive Fluid/Vapor Recovery Events

Based on the presence of measurable free phase petroleum thicknesses greater than 0.25 feet observed during the July 22, 2019 and September 27, 2019 monitoring events, vacuum truck aggressive fluid vapor recovery (AFVR) events were performed to address the free product in MW03. A summary of the AFVR events performed on August 12, 2019 and October 18, 2019 is provided in the following sections.

4.5.1 August 12, 2019 AFVR Event

Based on the free product thickness of 0.27 feet observed within MW03 during the July 22, 2019 gauging event an AFVR event was performed on August 12, 2019. Subsequent to gauging the onsite monitoring wells a vacuum truck under contract from W.E.L., Inc. (W.E.L.) of Concord, Virginia was utilized to perform liquid and vapor recovery from monitoring well MW03. Reinforced tubing, PVC pipe, and associated fittings were utilized to connect the monitoring well to the vacuum truck. Due to the short-term nature of the AFVR event, approximately 6.5 hours, Greene did not attempt to depress the groundwater table, but attempted to primarily determine the amount of measurable communication between the onsite monitoring wells and the ability for free phase petroleum to be recovered. As a result, the drop tube (stinger pipe) was installed approximately 1.0 feet within the liquid.

Throughout the approximately 6.5-hour AFVR event, the vacuum applied to the extraction well and the vacuum influence and drawdown in the surrounding wells were measured and recorded. The August 12, 2019 AFVR event recovered approximately 197 gallons of petroleum impacted groundwater with an average vacuum of approximately 22 inches of mercury (inHg) applied to monitoring well MW03. The recovery well (MW03) yielded a maximum drawdown value of 3.30 feet. Further, gauging performed at MW03 following the AFVR event yielded no evidence of free phase petroleum. In addition, a measurable vacuum influence from the vacuum applied to the recovery well was observed at monitoring wells MW02 and MW04. A copy of the vacuum truck Bill of Lading for the recovered liquids is included in Appendix F.

4.5.2 October 18, 2019 AFVR Event

Based on the free product thickness of 0.27 feet observed within MW03 during the September 27, 2019 gauging event an AFVR event was performed on October 18, 2019. Subsequent to gauging the onsite monitoring wells a vacuum truck under contract from R.E.M. was utilized to perform liquid and vapor recovery from monitoring well MW03. Reinforced tubing, PVC pipe, and associated fittings were utilized to connect the monitoring well to the vacuum truck. Due to the short-term nature of the AFVR event, approximately 7.0 hours, Greene did not attempt to depress the groundwater table, but attempted to primarily determine the amount of measurable communication between the onsite monitoring wells and the

ability for free phase petroleum to be recovered. As a result, the drop tube (stinger pipe) was installed approximately 1.0 feet within the liquid.

Throughout the approximately 7.0-hour AFVR event, the vacuum applied to the extraction well, the vacuum influence and drawdown in the surrounding wells, and VOC vapors at the vacuum truck were measured and recorded. The October 18, 2019 AFVR event recovered approximately 535 gallons of petroleum impacted groundwater with an average vacuum of 24.29 inches of mercury (inHg) applied to monitoring well MW03. The recovery well (MW03) yielded the highest maximum drawdown value of 4.90 feet. In addition, gauging data indicated maximum drawdowns at monitoring wells MW01, MW02, MW04, MW09, MW10, and MW11 of 0.04 feet, 0.19 feet, 0.58 feet, 0.01 feet, 0.27 feet, and 0.1 feet, respectively. Further, gauging performed at MW03 following the AFVR event yielded no evidence of free phase petroleum. In addition to drawdown, a measurable vacuum influence from the vacuum applied to the recovery well was observed at monitoring wells MW01, MW02, MW04, MW09, MW10, and MW11. A copy of the vacuum truck Material Manifest for the recovered liquids is included in Appendix F.

4.6 Groundwater & Surface Water Sampling & Laboratory Results

4.6.1 Shallow Groundwater Monitoring Wells

As part of PSCM SP1 activities, groundwater samples were collected from the 11 onsite and offsite shallow groundwater monitoring wells (MW01-MW11) on October 14, 2019. Prior to purging and sampling, the static water level was recorded and the presence of free phase petroleum was investigated using a Heron Instruments, Inc. or Solinst® electronic interface probe. The depth to product/groundwater measurements were recorded from a reference mark placed on the top of each well casing. A measurable free product thickness (~0.67 feet) was observed within monitoring well MW03 during the October 14, 2019 gauging event. A summary of the sampling gauging event is presented in Table 6 – Summary of Calculated Purge Volumes included in Appendix A, Page 23.

Despite the presence of free phase petroleum within monitoring well MW03, Greene collected a groundwater sample from beneath the free product layer. The groundwater sample was collected to obtain dissolved phase analytical data to be utilized to generate Isoconcentration Maps and perform limited fate and transport modeling. The groundwater sample from MW03 was collected using a dedicated, disposable, HDPE bailer and was transferred directly into the appropriate sample containers. The groundwater samples collected from monitoring wells MW01, MW02, and MW04-MW11 were collected using a 12-volt S.S. Monsoon Proactive Environmental Products submersible pump with a low-flow controller. Dedicated, disposable, LDPE tubing was used to purge the wells and transfer the groundwater samples directly into

the appropriate sample containers. The wells were purged until dry or a minimum of three well volumes had been displaced. Water samples were collected in the appropriate sample containers, entered onto a chain of custody document, sealed inside a cooler on ice, and shipped overnight to the Maryland Spectral Services (MSS) laboratory in Baltimore MD. The groundwater samples collected from monitoring wells MW01-MW11 were submitted for TPH-GRO and TPH-DRO analysis via EPA method 8015 and BTEX, MTBE, and naphthalene analysis via EPA method 8260. Copies of the PSCM SP1 Isoconcentration maps are provided in Appendix B. Copies of the laboratory results and chain of custody documentation are included in Appendix D.

The water samples collected from monitoring wells MW05-MW08 yielded Non Detected for petroleum contamination at laboratory detection limits; however, water samples collected from monitoring wells MW01-MW04 and MW09-MW11 yielded measurable levels of petroleum contamination. Selected results were flagged with J qualifiers and the concentrations are considered estimates due to the reported results being below the reporting limits (RLs) and equal to or above the laboratory detection limits (LDLs). As a result, it is likely those specific analytes are present in the samples, but the results should be viewed only as qualitative and not quantitative. The groundwater samples collected from monitoring wells MW01-MW04 and MW09-MW11 yielded significantly increased TPH-DRO concentrations as compared to previous sampling events. Greene contacted MSS regarding the observed discrepancies between the current and previous TPH-DRO concentrations. MSS personnel reviewed the current results and did not observe any errors with the reported data and the results are believed to be accurate. Table 7 - Summary of Monitoring Well Dissolved Phase Analytical Results is included in Appendix A, Page 24.

4.6.2 Deep Groundwater Monitoring Wells

As part of PSCM SP1 activities, groundwater samples were collected from the three deep groundwater monitoring wells (MW12-MW14) on April 3, 2019. Prior to purging and sampling, the static water level was recorded using a Heron Instruments, Inc. water meter. The depth to groundwater measurements were recorded from a reference mark placed on the top of each well casing. A summary of the sampling gauging event is presented in Table 6 – Summary of Calculated Purge Volumes included in Appendix A, Page 23.

The groundwater samples from MW12-MW14 were collected using a generator, three-inch Grundfos submersible pump, and dedicated, disposable, 0.75-inch HDPE tubing. The wells were purged until a minimum of three well volumes had been displaced. Water samples were collected in the appropriate sample containers, stored on ice, and transported via courier to the Pace laboratory in Beaver, WV. The groundwater samples collected from deep groundwater monitoring wells MW12-MW14 were submitted for TPH-GRO analysis via EPA method 8015, VOCs analysis via EPA method 8260, semi-volatile organic

compounds (SVOCs) analysis via EPA method 8270, EDB and DBCP analysis via EPA method 8011, and total and dissolved lead analysis via EPA method 200.8. Copies of the laboratory results and chain of custody documentation are included in Appendix D.

The water samples collected from deep groundwater monitoring wells MW12-MW14 yielded Non Detected for chemicals typically associated with petroleum contamination at laboratory MDLs. However, dimethyl phthalate and total lead concentrations were observed during deep water monitoring well sampling activities. Selected results were flagged with J qualifiers and the concentrations are considered estimates due to the reported results being below the PQLs and equal to or above the laboratory MDLs. As a result, it is likely those specific analytes are present in the samples, but the results should be viewed only as qualitative and not quantitative. Dimethyl phthalate is listed as a known, common laboratory contaminant by the EPA and the limited concentration likely indicates the result was due to laboratory contamination. Dimethyl phthalate is primarily utilized in the production of plastics, insect repellants, and pesticides and is generally not associated with petroleum releases. In addition, the result is significantly below the EPA human health water quality criteria standard for dimethyl phthalate of 270,000 µg/L. Lead is a naturally occurring element formerly and/or currently utilized in leaded gasoline, paint, ceramics, pipes, fixtures, solder, etc. Lead is generally observed in tap water due to the corrosion of plumbing fixtures, piping, and/or solder. According to the EPA, the action level for lead in public drinking water systems is 15 µg/L. Table 7 - Summary of Monitoring Well Dissolved Phase Analytical Results is included in Appendix A, Page 24.

Please note, during September 2019 deep groundwater monitoring wells MW12, MW13, and MW14 were converted to supply wells DW01B, DW02C, and DW03C as part of IA CAP activities. Subsequent to converting to supply wells these wells were sampled and the results are included in Section 4.6.3 of this report. A summary of the conversion of deep water monitoring wells to supply wells will be provided in the IA CAP report.

4.6.3 Supply Wells

As documented in the previously submitted reports, in use supply wells DW01A, DW02A, DW03A, DW04A, DW05A, and DW07A have been impacted with petroleum. In an effort to mitigate concern associated with ingestion of petroleum impacted drinking water, CFU systems have been installed as part of the VA DEQ AWS program. As part of CFU system installation and maintenance activities pre-treatment drinking water samples are routinely collected. Laboratory analytical results collected on behalf of the VA DEQ AWS program have been included in Table 8 - Summary of Supply Well Dissolved Phase Analytical Results, which is included in Appendix A, Page 27. Copies of the laboratory results and chain of custody documentation for the samples collected on behalf of the VA DEQ AWS program are not included in this report and any request for this documentation should be made to the VA DEQ AWS program.

In addition, at the time petroleum impact was originally observed at the Franklin Property (P06) potable water was being obtained from DW07A. As a result, a CFU system was installed at the Franklin Property on July 18, 2017. During December 2018 access to offsite supply well DW07A was reportedly lost and the Franklin Property returned to utilizing the onsite drilled supply well (DW06C) to provide potable water to the property. Laboratory analytical results of drinking water samples collected by Greene from supply well DW06C during previous phases of investigation on October 10, 2017, August 30, 2018, and October 10, 2018 yielded Non Detected for chemicals typically associated with petroleum contamination at method detection limits. However, laboratory analytical results obtained during a routine sampling event performed on behalf of the VA DEQ AWS program on January 4, 2019 yielded measurable petroleum contamination within supply well DW06C. Further, a confirmation sample collected on behalf of the VA DEQ AWS program also yielded measurable petroleum contamination. Based on confirmed petroleum contamination, the property owner and VA DEQ personnel were notified and arrangements were made to continue the routine CFU system monitoring and maintenance.

In addition to the sampling performed as part of the VA DEQ AWS program, Greene collected groundwater samples from in use supply wells DW01B, DW02C, DW03C, DW04A, DW05A, DW06B, DW06C, DW07A, DW08A, DW08B, DW09A, DW10A, DW11A, and DW33A as well as out of use supply wells DW01A, DW02A, DW03A, DW04B, DW09B, and DW33B during this phase of investigation. The groundwater samples from the in use supply wells were collected from inside or outside fixtures installed prior to any treatment systems subsequent to allowing the water to flow for approximately 10 minutes. The groundwater samples from out of use supply wells DW01A, DW02A, and DW03A were collected utilizing a generator and the existing pumps located within the wells subsequent to allowing the water to flow for approximately 10 minutes. Groundwater samples collected from out of use supply wells DW04B, DW09B, and DW33B were collected using a generator and a three-inch Grundfos submersible pump with 0.75-inch HDPE tubing. Out of use supply wells DW04B, DW09B, and DW33B went dry prior to removing three well volumes, and the samples were collected subsequent to allowing the wells to recharge.

Clean disposable nitrile gloves were used during all phases of sample collection. The supply well water samples were collected in the appropriate sample containers, stored on ice, and transported via courier to the Pace laboratory in Beaver, WV or shipped overnight to the MSS laboratory in Baltimore, MD. The groundwater samples collected from the supply wells were submitted for TPH-GRO analysis via EPA method 8015, VOCs analysis via EPA method 8260, SVOCs analysis via EPA method 8270, EDB and/or DBCP analysis via EPA method 8011. Copies of the laboratory results and chain of custody documentation are included in Appendix D.

The water samples collected from supply wells DW01A, DW02A, DW04A, DW05A, and DW07A continue to yield measurable levels of petroleum contamination. In addition, the groundwater sample collected by Greene from DW06C on February 7, 2019 yielded measurable petroleum contamination. However, the groundwater samples collected by Greene on October 14, 2019 from previously impacted supply wells DW03A and DW06C yielded Non Detected for chemicals typically associated with petroleum contamination. Further, the water samples collected from supply wells DW01B, DW02C, DW03C, DW04B, DW06B, DW08A, DW08B, DW09A, DW09B, DW10A, DW11A, DW33A, and DW33B yielded Non Detected at method detection limits for chemicals typically associated with petroleum contamination. Following receipt of the laboratory analytical results, Greene submitted drinking water results letters to each of the property owners. Additional information regarding the receptors is provided in Sections 4.8.1 and 4.8.2.2 of this report. Table 8 - Summary of Supply Well Dissolved Phase Analytical Results is included in Appendix A, Page 27. Table 13 – Description of Observed Supply Well Analytes is included in Appendix A, Page 43. Copies of the laboratory results and chain of custody documentation are included in Appendix D.

4.6.4 Surface Water

On October 14, 2019, surface water samples (Pond-01 and ST01) were collected from the pond (Pond-01) draining to East Fork Beaverdam Creek and from the unnamed intermittent tributary to East Fork Beaverdam Creek, respectively. Clean disposable nitrile gloves were used during all phases of sample collection. The surface water samples were collected in the appropriate sample containers, entered onto a chain of custody document, sealed inside a cooler on ice, and shipped overnight to the MSS laboratory in Baltimore MD. The surface water samples were submitted for VOCs analysis via EPA method 8260.

Analytical results of the surface water samples collected on October 14, 2019 yielded Non Detected at LDLs for chemicals typically associated with petroleum contamination. Additional information regarding the surface water is provided in Section 4.8.1 of this report. Table 9 - Summary of Surface Water Dissolved Phase Analytical Results is included in Appendix A, Page 38. The locations of the surface water samples are included on the Surface Water Samples Location Map provided in Appendix B. Copies of the laboratory results and chain of custody documentation are included in Appendix D.

4.7 Plume Characterization

The following sections detail the characterization of the petroleum plume(s) observed at the Chamblissburg Supply facility.

4.7.1 Free Phase Plume Characterization

As previously mentioned, measurable free product thicknesses were observed only within monitoring well MW03 during this phase of investigation. Due to the lack of additional free phase petroleum monitoring points, a free product plume map was not generated during this phase of investigation. Based on the significant residual and dissolved phase petroleum contamination observed, it is likely that a free product plume exists at the subject site; however, significant free phase petroleum has been observed only within monitoring well MW03.

4.7.2 Dissolved Phase Plume Characterization

A shallow groundwater dissolved phase petroleum plume has been identified at the Chamblissburg Supply facility. During this phase of investigation shallow water dissolved phase petroleum contamination was identified in monitoring wells MW01-MW04 and MW09-MW11. Based on the Potentiometric Surface Maps generated during this phase of investigation, a general hydraulic gradient to the east-southeast was observed in the shallow water aquifer. In addition, the Isoconcentration maps generated during this phase of investigation primarily reflect the shallow groundwater gradient depicted on the Potentiometric Surface Maps.

Rising head pump tests performed during previous phases of investigation yielded an average hydraulic conductivity at the site of 0.5903 ft/day. The estimated hydraulic gradient across the site on October 14, 2019, was 0.011 feet per foot (ft/ft), determined from the potentiometric map included in Appendix B. The porosity or percentage of soil void volume to total volume for soils such as those observed at the site is estimated to be approximately 30%. Based on data obtained during this and the previous phases of investigation the average shallow groundwater velocity at the site is calculated to be approximately 0.0216 ft/day, or 7.88 feet per year (ft/yr). The shallow water dissolved phase contaminant plume would be expected to migrate at this rate with pockets of greater rates where conduits permit flow in channels rather than migration through the soil structure.

In addition to the shallow water petroleum contamination identified onsite, dissolved phase petroleum contamination has been observed in onsite supply well DW01A and offsite supply wells DW02A, DW03A, DW04A, DW05A, DW06C, and DW07A. Analytical results of groundwater samples collected from sentinel shallow water monitoring wells MW05-MW08 yielded Non Detected for petroleum contamination. The lack of petroleum contamination within these sentinel monitoring wells likely indicates: (1) the presence of a shallow water aquifer diving plume, (2) the petroleum contamination is migrating to the impacted supply wells in the deep water aquifer, or (3) a combination of both. A diving plume has potential to migrate along the bedrock interface and enter the drilled drinking water wells though poorly sealed

casings within the bedrock. In this situation, the supply well becomes a conduit to the deep water aquifer for the shallow water petroleum contamination, which then allows for both shallow and deep aquifer petroleum contamination migration. In contrast, a series of geologic conduits (fractures, partings, seams, etc.) could allow for communication between the shallow groundwater dissolved phase petroleum plume and the deep aquifer. Further, both circumstances could be present in some capacity at the subject site and in the surrounding area. However, based on the limited site characterization performed to date, the dissolved phase plume characterization is incomplete. Additional subsurface activities are required to sufficiently delineate the petroleum plume(s) associated with the Chamblissburg Supply facility.

Despite the limited characterization completed to date, simple fate and transport modeling was performed during this phase of investigation in an attempt to characterize the dissolved phase plume located in the shallow water aquifer at the subject site. BIOSCREEN-AT modeling software was utilized to characterize the total and individual BTEX, MTBE, and naphthalene dissolved phase plumes at the Chamblissburg Supply facility. These models were generated based on a continuous source, published degradation rates, and the dissolved phase contamination and hydraulic gradient data obtained during the October 14, 2019 monitoring and sampling event. In addition, the highest observed historical hydraulic conductivity (0.9199 ft/day), the highest observed PSCM SP1 concentration, and the highest published solute half-life for each constituent were utilized to demonstrate the worst-case plume migration. Further, in the absence of published or observed data required for modeling, Greene utilized values to represent a worst-case scenario. The shallow water plume size has been estimated based on the presence of dissolved phase petroleum contamination within onsite monitoring wells.

BIOSCREEN-AT modeling data estimates the individual first order decay MTBE and benzene plumes to be the longest at approximately 378 feet and 347 feet, respectively. It also estimates the toluene, ethylbenzene, xylenes, and naphthalene first order decay plumes to be approximately 150 feet, 120 feet, 202 feet, and 110 feet, respectively. In addition, the total BTEX, MTBE, and naphthalene plume is estimated to be approximately 417 feet. The dissolved phase plume modeled as total BTEX, MTBE, and naphthalene is thought to best depict the actual plume as evidenced by relative distances/concentrations of the impacted dissolved phase receptors observed to date. However, additional subsurface investigation activities will be required to further calibrate the model to observed site conditions. PSCM SP1 BIOSCREEN-AT Modeling Input Data and Graphical Representations are included in Appendix G.

4.8 Risk Assessment

Greene performed a risk assessment to evaluate the potential risk to human health and the environment associated with the petroleum compounds detected at the site. The findings of the risk assessment are presented in the following sections.

4.8.1 Identification of Receptors

As part of the previously performed Release Investigation Report, a ¼-mile radius receptor survey was performed to identify potential receptors to the confirmed petroleum contamination. One commercial property, one church property, 32 residential properties, and five agricultural/undeveloped properties were identified during the RIR phase of investigation. Based on the multiple impacted sensitive receptors, the survey was expanded to the east (north of Stewartsville Road) during the SCR phase of investigation. An additional two residential properties were identified. At each of the 41 properties/parcels identified during the previous phases of investigation the presence of a drinking water well, spring, or additional potential receptor to petroleum contamination was attempted to be confirmed. In situations where no one was able to be located at a property/parcel, a contact letter was left in a conspicuous location and a limited visual inspection was performed. Results of the initial ¼-mile radius receptor survey, additional follow-up activities, and the expanded survey identified 45 drilled, bored, or hand dug supply wells, four ponds, and the intermittent tributary to East Fork Beaverdam Creek. Further, as part of Interim Authorization Corrective Action Plan activities, deep groundwater monitoring wells MW12, MW13, and MW14 were converted to drilled supply wells in September 2019. A summary of the conversion of deep water monitoring wells to supply wells will be provided in the IA CAP report. Finally, topographic information indicates the nearest identified surface water body is an unnamed intermittent tributary to East Fork Beaverdam Creek located approximately 700 feet to the northeast of the former shared gasoline UST basin and approximately 620 feet northeast of the former shared diesel fuel and kerosene UST basin. Table 14 - Summary of the Receptor Survey Results is included in Appendix A, Page 45. The locations of the potential receptors are included on the Potential Receptors Location Map provided in Appendix B.

4.8.2 Identification of Exposure Pathways

The identification of potential exposure pathways is necessary to evaluate the risk posed by the extent of the release. An exposure pathway requires that there be some mechanism for any person or population to come into contact with one or more of the media which contain the contaminant of concern. No risk is assumed in the absence of contamination or in the absence of an exposure pathway.

4.8.2.1 Inhalation

The presence of concrete, gravel, and grass surface coverings in the immediate vicinity of the former UST systems and the depth to petroleum contamination mitigates concern associated with potential exposure to VOC vapors emanating from the subsurface.

4.8.2.2 Ingestion

The most likely pathway for the ingestion of petroleum contamination would be through consumption of contaminated groundwater within the area. Groundwater samples collected from supply wells DW01A, DW02A, DW03A, DW04A, DW05A, DW06C, and DW07A have yielded measurable petroleum contamination. As a result, CFU systems were installed on these wells in order to mitigate concern associated with ingestion of petroleum contamination.

During this phase of the investigation, Greene collected drinking water samples from additional offsite receptors. At this time, these receptors do not appear to be impacted by the petroleum release currently under investigation. However, should any additional offsite in use drinking water receptors become impacted, the contamination will be reported to the VA DEQ AWS program and CFUs will likely be installed to mitigate any associated risk. Surface water samples collected during this phase of investigation from the unnamed intermittent tributary to East Fork Beaverdam Creek and Pond-01 yielded Non Detected for petroleum contamination.

4.8.2.3 Dermal Contact

The presence of concrete, asphalt, gravel, and grass surface coverings in the immediate vicinity of the former UST systems and the depth to petroleum contamination mitigates concern associated with potential contact with adsorbed phase contaminants. In addition, carbon filtration units have been installed on the impacted supply wells mitigating concern associated with potential contact with dissolved phase contaminants.

5.0 Remediation Assessment

The following sections outline applicable remediation technologies that are commonly implemented at petroleum impacted sites that warrant corrective action measures.

5.1 Description of Remediation Alternatives

5.1.1 Soil Vapor Extraction with In Situ Air Sparging

Vapor extraction refers to the technique of removing contaminant vapors from the unsaturated zone by means of active or passive venting. A network of extraction points is installed either vertically or horizontally within the contaminated zone and manifolded to a surface discharge point. Extracted vapors

either are vented directly to the atmosphere or to an off-gas treatment unit. The need for off-gas treatment likely is a function of site-specific conditions and local regulatory emission standards. Active vapor extraction has proven to expedite remediation of free- and dissolved-phase contamination as well. The decreased pore pressure within the unsaturated zone created by the induced vacuum increases the volatilization of contaminants within the respective plumes below.

Sparging has been used successfully to expedite remediation through vapor extraction. Sparging involves the injection of air into the subsurface through a series of injection points. The introduction of clean air increases the rate of pore volume exchange between clean air and the subgrade contaminant vapor. A greater percentage of contaminant vapor can then be extracted using a vapor extraction system. Groundwater sparging, the introduction of clean air into the phreatic zone, has been used with great success in expediting the remediation of dissolved-phase contaminant plumes. Greatest efficiency has been documented through the use of groundwater sparging in association with vapor extraction systems. Remedial system design will require modifications to address the presence of voids/fractures. A comprehensive, tabular summary of this remedial approach is presented in Table 15 – In Situ Air Sparging with Soil Vapor Extraction included in Appendix A, Page 52.

5.1.2 Groundwater Pump & Treat

Groundwater pump and treat technology involves extracting contaminated groundwater for treatment at the surface. A network of groundwater recovery wells is installed, depending upon site specific conditions and hydrogeologic considerations. Groundwater is recovered from the extraction points through systematic pumping. Once at the surface, the extracted liquids can be treated on-site using various remedial components or transported off-site for treatment and disposal. On-site treatment methods may include activated carbon filtration, residence in a bioreactor, air stripping, etc. As in the case of vapor extraction, the use of an air stripper may require off-gas permitting. Further permitting may be required by the local regulatory agency for the discharge of the treated waste stream. A comprehensive, tabular summary of this remedial approach is presented in Table 16 – Groundwater Pump & Treat Systems included in Appendix A, Page 52.

5.1.3 In Situ Bioremediation

In situ bioremediation involves a process where oxygen and nutrients are introduced to the unsaturated zone through well points or an infiltration gallery to promote contaminant degradation by naturally-occurring organisms. Commercially available bacteria also may be employed where the indigenous population is insufficient. The effectiveness of bioremediation is a function of various physical properties of the subsurface environment and the contaminants, though it is proven effective in most settings impacted by

petroleum hydrocarbons. This process allows for treatment of contaminated groundwater in-place, eliminating the requirement for pumping and the subsequent treatment of extracted groundwater. Costs associated with the implementation and management of a bioremediation system may vary, but have been estimated between $60 and $123 per cubic yard ($40 to $90 per ton). Treatment time may vary significantly, generally ranging from six months to four years. A comprehensive, tabular summary of this remedial approach is presented in Table 17 – In Situ Bioremediation included in Appendix A, Page 53.

5.1.4 Dual-Phase Extraction

Residual- and dissolved-phase petroleum compounds have been demonstrated by industry to effectively be removed using dual-phase extraction technology. A rotary-claw vacuum pump removes liquid- and vapor-phase contaminants from recovery wells or trenches. Aboveground treatment is dependent on the nature of the effluent waste stream, but typically it involves the mechanical separation of vapors, free-phase petroleum, and groundwater, removal of dissolved-phase compounds from groundwater via stripping and carbon filtration, and discharge of treated groundwater under applicable permit authority. Vapors may be emitted to the atmosphere without treatment if calculated emission rates are below permit threshold limits.

Dual-phase systems have proven to be effective in attaining remediation endpoints within one to four years. Capital costs associated with a fixed recovery and treatment system typically ranges from $80,000 to $200,000. Annual operation and maintenance costs typically range from $25,000 to $75,000. A comprehensive, tabular summary of this remedial approach is presented in Table 18 – Dual Phase Extraction included in Appendix A, Page 53.

In some cases, short-term removal using a mobile dual-phase extraction and treatment system can be effective in recovering significant contaminant mass and reducing the long-term impact of petroleum releases. When performed as a feasibility study prior to issuance of a Corrective Action Plan, a 72-hour removal event typically costs approximately $15,000.

5.1.5 Alternate Water Supply

Providing an alternate water supply is a form of corrective action primarily implemented when petroleum contamination is detected within a drinking water well. In some situations, provision of an AWS may eliminate potential downgradient receptors at a site and could reduce or eliminate the corrective actions required. However, additional remediation often is required in conjunction with an AWS to recover free product and/or prevent further migration of petroleum contamination towards additional sensitive receptors. Generally, an AWS is provided by the installation of a new drinking water well or connection to a municipally-provided public water supply.

The installation of an AWS, where possible, is generally a cost-effective portion of corrective action; however, the costs can differ greatly depending on the type of AWS provided and the locality of the property. Costs associated with the installation of a new drinking water well including connection to the residence/building typically range from $15,000-$25,000. Alternatively, costs associated with connection to a public water supply typically range from $2,000-$6,000 and are dependent on if a water main is located proximal to the property. In addition, installation of an AWS generally reduces the cost of long-term corrective action by eliminating the nearest sensitive receptor(s), which normally reduces the dissolved phase remedial endpoints required to eliminate risk of impact to any remaining sensitive receptors.

5.2 Remedial Recommendation

During the previous phase of work, Greene recommended converting the deep groundwater monitoring wells (MW12-MW14) to supply wells for use at the Chamblissburg Supply, former Dudley Property, and the Farkas Residence, respectively. In addition, Greene previously recommended installing a deep water monitoring well on the Houck property. VA DEQ personnel approved these activities as part of IA CAP activities. Summaries of the conversion of deep water monitoring wells to supply wells, the installation of a potential replacement supply well at the Houck property, and recommendations associated with obtaining alternate water supplies to impacted supply wells will be provided in the IA CAP report.

Based on the presence of free phase petroleum, significant dissolved phase petroleum, greater than saturated residual phase petroleum, and the potential risk to offsite supply wells, additional corrective action measures will likely be required. However, further data is required to determine the appropriate long-term remedial recommendation for the subject site at this time. The limited data obtained during the vacuum truck AFVR events performed during this phase of investigation appears to indicate that DPE remediation will effectively reduce the vapor phase, free phase, residual phase, and dissolved phase contamination identified onsite. However, Greene recommends the performance of a two week pilot study to confirm the technology effectiveness and collect necessary data for long term system design and the preparation of applicable discharge permit applications.

6.0 Conclusions and Recommendations

Based on the findings of the SCRA, the VA DEQ requested Post Site Characterization Monitoring activities be performed at the Chamblissburg Supply facility. During the PSCM SP1 phase of work the former property owner coordinated the removal of the two UST systems located at the subject site. During closure activities, a petroleum release associated with the gasoline UST system was confirmed based on petroleum impacted soils observed within the gasoline UST basin and beneath the gasoline dispenser island. In addition, a second release was confirmed during closure of the kerosene/diesel fuel UST system. This

release was also confirmed based on the presence of observed petroleum impacted soils within the shared kerosene/diesel fuel UST basin and beneath the kerosene/diesel fuel dispenser island. In an effort to reduce the onsite sources of contamination, a total of 312.31 tons of petroleum impacted soils have been removed from the site and disposed of at a treatment facility.

To date, vapor phase, residual phase, dissolved phase, and free phase petroleum contamination have been encountered in the subsurface at the Chamblissburg Supply facility. During this phase of investigation, measurable free product thicknesses ranging from 0.11 feet to 0.67 feet were observed within groundwater monitoring well MW03. Based on the free product thicknesses, two vacuum truck recovery events were performed and approximately 732 gallons of petroleum impacted groundwater were recovered. Groundwater samples collected from the shallow groundwater monitoring wells (MW01-MW04 and MW09-MW11) confirmed the presence of dissolved phase petroleum contamination in the shallow groundwater aquifer. In addition, drinking water samples collected from supply wells DW01A, DW02A, DW03A, DW04A, DW05A, DW06C, and DW07A yielded evidence of petroleum impact. However, groundwater samples collected from the deep water monitoring wells MW12, MW13, and MW14 yielded Non Detected for chemicals typically associated with petroleum contamination. As previously mentioned, during September 2019 deep groundwater monitoring wells MW12, MW13, and MW14 were converted to supply wells DW01B, DW02C, and DW03C and a summary of these activities will be provided in the VA DEQ requested IA CAP report.

Relative groundwater elevations within the 11 shallow groundwater monitoring wells as measured during this phase of investigation depict a general hydraulic gradient primarily to the east-southeast and Isoconcentration Maps generated during this phase of investigation appear to indicate the shallow water dissolved phase plume also is migrating to the east-southeast. Limited fate and transport modeling of the shallow water contamination indicates the potential for a 417 feet dissolved phase plume, which is less than the distance to impacted supply well DW04A located approximately 525 feet east-southeast. However, previously performed geologic and geophysical analysis did not yield evidence of any direct fracture pathways between the onsite dissolved phase petroleum contamination and the impacted supply wells.

Due to the presence of free phase petroleum, significant dissolved phase contamination onsite, and impact to onsite and offsite sensitive receptors, Greene continues to recommend additional work be performed at the subject site. During the previous phase of work, Greene recommended converting the deep groundwater monitoring wells (MW12-MW14) into supply wells for use at the Chamblissburg Supply, former Dudley Property, and the Farkas Residence. In addition, Greene previously recommended installing a deep water monitoring well on the Houck property. VA DEQ personnel approved these activities as part of the ongoing

Interim Authorization Corrective Action Plan activities. Summaries of the conversion of deep water monitoring wells to supply wells, the installation of a potential replacement supply well at the Houck property, and recommendations associated with obtaining alternate water supplies to impacted supply wells will be provided in the IA CAP report.

Based on the presence of free phase petroleum, significant dissolved phase petroleum, and the potential risk to offsite supply wells, Greene recommend additional activities be performed at the subject site. Specifically, Greene recommends additional onsite soil borings/shallow groundwater monitoring wells be installed within the former gasoline dispenser island excavation area. During excavation activities, two 6-inch PVC sumps were installed to allow for installation of shallow groundwater monitoring wells within the suspected primary source of petroleum contamination. Installation of the well(s) within the suspected gasoline source will allow for further delineation of the observed residual phase, shallow groundwater dissolved phase, and free phase petroleum contamination. Subsequent to the installation of the additional wells, Greene recommends the performance of pump-down rising head testing to include the newly installed shallow groundwater monitoring wells. Data obtained from the groundwater sampling, pump-down tests, and additional aquifer characterization will be utilized to further estimate the approximate limits of the contaminant plume(s), update Isoconcentration Maps and fate and transport modeling, and will aid in the determination of remedial endpoints.

In addition, Greene recommends the performance of activities to determine the appropriate long-term remedial recommendation for the subject site. The limited data obtained during the vacuum truck recovery events performed during this phase of investigation appears to indicate that DPE remediation will effectively reduce the vapor phase, free phase, residual phase, and dissolved phase contamination identified onsite. However, Greene recommends the performance of a two week pilot study to confirm the technology effectiveness and collect necessary data for long term system design and the preparation of applicable discharge permit applications.

End of the Post Site Characterization Monitoring Report Sub-Phase 1

APPENDIX A

Tables

Table 1.

Summary of UST Information[1]

	UST #1	UST #2	UST #3	UST #4	UST #5	UST #6
VA DEQ TANK ID	1	2	3	4	5	6
TYPE	Coated and Cathodically Protected	Coated and Cathodically Protected	Coated and Cathodically Protected	Coated and Cathodically Protected	Coated and Cathodically Protected	Coated and Cathodically Protected
CAPACITY (Gallons)	1,000	1,000	4,000	5,000	6,000	5,000
CONTENTS	Kerosene	Diesel Fuel	Gasoline	Gasoline	Gasoline	Gasoline
PIPING	Cathodically Protected Galvanized Steel (no valve: suction)[2]	Cathodically Protected Galvanized Steel (no valve: suction)[2]	Cathodically Protected Galvanized Steel (no valve: suction)[2]	Cathodically Protected Galvanized Steel (no valve: suction)[2]	Cathodically Protected Galvanized Steel (no valve: suction)[2]	Cathodically Protected Galvanized Steel (no valve: suction)[2])
INSTALLATION DATE	April 22, 1978	April 22, 1978	April 22, 1978	April 22, 1978	April 22, 1978	April 22, 1978
STATUS	Removed from ground January 2019	Removed from ground January 2019	Removed from ground January 2019	Removed from ground January 2019	Removed from ground January 2019	Removed from ground January 2019
SPILL PREVENTION	Yes	Yes	Yes	Yes	Yes	Yes
OVERFILL DEVICE	Yes	Yes	Yes	Yes	Yes	Yes

[1]UST information was obtained from site history research, site inspections, and/or the VA DEQ tank database updated on July 5, 2017.
[2]Tank testing performed during RIR & SCR activities appear to indicate the presence of a check valve.

Table 2.

Summary of Field Screening Results

Sample Identification	Depth (feet bgs)	Olfactory Observation	PID Readings (ppm)	Retained for Analysis
B01-1	0-5	Petroleum Odor	4,737	Yes
B01-2	5-10	Strong Petroleum Odor	4,117	No
B01-3	10-15	Strong Petroleum Odor	3,583	No
B01-4	15-20	Strong Petroleum Odor	3,302	No
B01-5	20-25	Strong Petroleum Odor	2,957	No
B01-6	25-30	Strong Petroleum Odor	2,559	No
B01-7	30-33	Strong Petroleum Odor	2,250	Yes
Soil boring B01 was advanced to rod refusal at 32.5 feet bgs in an attempt to encounter groundwater; however, groundwater was not identified.				
B02-1	0-5	Slight Petroleum Odor	1,818	No
B02-2	5-10	Petroleum Odor	643.9	No
B02-3	10-15	Strong Petroleum Odor	2,757	Yes
B02-4	15-20	Strong Petroleum Odor	2,115	Yes
B03-1	0-5	Slight Petroleum Odor	163.6	No
B03-2	5-10	Slight Petroleum Odor	198.5	No
B03-3	10-15	Slight Petroleum Odor	118.8	No
B03-4	15-20	Slight Petroleum Odor	141.0	No
B04-1	0-5	No Petroleum Odor	57.9	No
B04-2	5-10	No Petroleum Odor	70.9	No
B04-3	10-15	No Petroleum Odor	87.7	No
B04-4	15-20	Slight Petroleum Odor	99.9	Yes
B05-1	0-5	No Petroleum Odor	65.0	No
B05-2	5-10	No Petroleum Odor	89.6	No
B05-3	10-15	No Petroleum Odor	30.2	No
B05-4	15-20	No Petroleum Odor	26.5	Yes
B06-1	0-5	No Petroleum Odor	32.7	No
B06-2	5-10	No Petroleum Odor	28.5	No
B06-3	10-15	No Petroleum Odor	21.8	No
B06-4	15-20	No Petroleum Odor	31.4	No

Table 2 (Cont'd).

Summary of Field Screening Results

Sample Identification	Depth (feet bgs)	Olfactory Observation	PID Readings (ppm)	Retained for Analysis
B07-1	0-5	No Petroleum Odor	19.1	No
B07-2	5-10	No Petroleum Odor	13.9	No
B07-3	10-15	Slight Petroleum Odor	9.3	No
B07-4	15-20	No Petroleum Odor	13.2	Yes
B08-1	0-5	No Petroleum Odor	5.5	No
B08-2	5-10	No Petroleum Odor	7.7	No
B08-3	10-15	Slight Petroleum Odor	5.8	No
B08-4	15-20	Slight Petroleum Odor	0.1	No
B09-1	0-5	No Petroleum Odor	10.9	No
B09-2	5-10	No Petroleum Odor	2.0	No
B09-3	10-15	Slight Petroleum Odor	3.2	No
B09-4	15-20	Slight Petroleum Odor	0.0	No
B10-1	0-5	No Petroleum Odor	0.0	No
B10-2	5-10	Slight Petroleum Odor	0.0	No
B10-3	10-15	Slight Petroleum Odor	2.6	No
B10-4	15-20	Petroleum Odor	334.8	Yes
B11-1	0-5	Strong Petroleum Odor	1,092	Yes
B11-2	5-10	Strong Petroleum Odor	1,408	No
B11-3	10-15	Strong Petroleum Odor	1,173	No
B11-4	15-20	Strong Petroleum Odor	1,043	Yes
B11-5	20-31.75	Soil boring B11 was advanced to rod refusal at 31.75 feet bgs in an attempt to encounter groundwater. Soil samples were not collected during these additional activities and groundwater was not identified.		
B12-1	0-5	Petroleum Odor	1,127	Yes
B12-2	5-10	Petroleum Odor	1,251	No
B12-3	10-15	Strong Petroleum Odor	1,205	No
B12-4	15-20	Strong Petroleum Odor	1,183	Yes

Table 2 (Cont'd).

Summary of Field Screening Results

Sample Identification	Depth (feet bgs)	Olfactory Observation	PID Readings (ppm)	Retained for Analysis
B13-1	0-5	Slight Petroleum Odor	1,234	Yes
B13-2	5-10	Slight Petroleum Odor	1,270	No
B13-3	10-15	Slight Petroleum Odor	515.7	No
B13-4	15-20	Petroleum Odor	367.0	Yes
B14-1	0-5	No Petroleum Odor	104.8	No
B14-2	5-10	No Petroleum Odor	38.6	No
B14-3	10-15	No Petroleum Odor	22.0	No
B14-4	15-20	No Petroleum Odor	16.6	No
B15-1	0-5	No Petroleum Odor	14.3	No
B15-2	5-10	No Petroleum Odor	14.1	No
B15-3	10-15	Slight Petroleum Odor	19.0	No
B15-4	15-20	Petroleum Odor	88.5	Yes
B16-1	0-5	No Petroleum Odor	0.9	No
B16-2	5-10	No Petroleum Odor	0.0	No
B16-3	10-15	No Petroleum Odor	0.0	No
B16-4	15-20	No Petroleum Odor	0.0	No
B16-5	20-25	Slight Petroleum Odor	0.9	No
B16-6	25-30	Slight Petroleum Odor	2.8	No
B16-7	30-32	Slight Petroleum Odor	2.0	No
B16-8	35	Slight Petroleum Odor	0.0	Yes
B16-9	40	Slight Petroleum Odor	0.2	No
B16-10	45	Slight Petroleum Odor	0.0	Yes
B16-11	50	Slight Petroleum Odor	0.0	No
B16-12	55	Slight Petroleum Odor	0.0	No
B17-1	0-5	No Petroleum Odor	0.0	No
B17-2	5-10	No Petroleum Odor	6.4	No
B17-3	10-15	Slight Petroleum Odor	18.0	Yes
B17-4	15-20	Petroleum Odor	33.8	Yes
B17-5	20-25	Petroleum Odor	39.4	Yes

Table 2 (Cont'd).

Summary of Field Screening Results

Sample Identification	Depth (feet bgs)	Olfactory Observation	PID Readings (ppm)	Retained for Analysis
B17-6	25-28	Petroleum Odor	41.6	No
B17-7	30	Petroleum Odor	23.9	Yes
B17-8	35	Strong Petroleum Odor	38.2	Yes
B17-9	40	Strong Petroleum Odor	15.8	Yes
B17-10	45	Strong Petroleum Odor	8.2	Yes
B17-11	50	Strong Petroleum Odor	11.2	No
B17-12	55	Strong Petroleum Odor	10.4	No
B18-1	0-5	Strong Petroleum Odor	3,291	Yes
B18-2	5-10	Strong Petroleum Odor	2,067	Yes
B18-3	10-15	Strong Petroleum Odor	1,951	Yes
B18-4	15-20	Strong Petroleum Odor	1,957	Yes
B18-5	20-25	Strong Petroleum Odor	1,458	Yes
B18-6	25-30	Strong Petroleum Odor	1,631	Yes
B18-7	30-32	Strong Petroleum Odor	1,838	No
B18-8	35	Strong Petroleum Odor	1,185	Yes
B18-9	40	Strong Petroleum Odor	1,372	Yes
B18-10	45	Strong Petroleum Odor	1,320	Yes
B18-11	50	Strong Petroleum Odor	1,257	No
B18-12	55	Strong Petroleum Odor	1,341	No
B19-1	0-5	Strong Petroleum Odor	1,915	Yes
B19-2	5-10	Strong Petroleum Odor	1,858	Yes
B19-3	10-15	Strong Petroleum Odor	1,668	Yes
B19-4	15-20	Strong Petroleum Odor	1,743	Yes
B19-5	20-25	Strong Petroleum Odor	1,682	Yes
B19-6	25-30	Strong Petroleum Odor	1,658	Yes
B19-7	30-34	Strong Petroleum Odor	1,511	No
B19-8	35	Strong Petroleum Odor	1,736	Yes
B19-9	40	Strong Petroleum Odor	1,748	Yes
B19-10	45	Strong Petroleum Odor	1,374	Yes

Table 2 (Cont'd).

Summary of Field Screening Results

Sample Identification	Depth (feet bgs)	Olfactory Observation	PID Readings (ppm)	Retained for Analysis
B19-11	50	Strong Petroleum Odor	1,386	No
B19-12	55	Strong Petroleum Odor	1,563	No
B20-1	0-5	No Petroleum Odor	0.0	No
B20-2	5-10	No Petroleum Odor	0.0	No
B20-3	10-15	No Petroleum Odor	0.0	No
B20-4	15-20	No Petroleum Odor	0.0	No
B20-5	20-25	No Petroleum Odor	0.0	No
B20-6	25-28	No Petroleum Odor	0.0	No
B20-7	30	No Petroleum Odor	0.0	No
B20-8	35	No Petroleum Odor	0.0	Yes
B20-9	40	No Petroleum Odor	0.0	No
B20-10	45	No Petroleum Odor	0.0	Yes
B20-11	50	No Petroleum Odor	0.0	No
B20-12	55	No Petroleum Odor	0.0	No
B21-1	0-5	No Petroleum Odor	0.0	No
B21-2	5-10	No Petroleum Odor	0.0	No
B21-3	10-15	No Petroleum Odor	0.0	No
B21-4	15-20	No Petroleum Odor	0.0	No
B21-5	20-25	No Petroleum Odor	0.0	No
B21-6	30	No Petroleum Odor	0.0	No
B21-7	35	No Petroleum Odor	0.0	Yes
B21-8	40	No Petroleum Odor	0.0	No
B21-9	45	No Petroleum Odor	0.0	Yes
B21-10	50	No Petroleum Odor	0.0	No
B21-11	55	No Petroleum Odor	0.7	No
B22-1	0-5	No Petroleum Odor	0.0	No
B22-2	5-10	No Petroleum Odor	0.0	No
B22-3	10-15	No Petroleum Odor	0.0	No
B22-4	15-20	No Petroleum Odor	0.0	No

Table 2 (Cont'd).

Summary of Field Screening Results

Sample Identification	Depth (feet bgs)	Olfactory Observation	PID Readings (ppm)	Retained for Analysis
B22-5	20-25	No Petroleum Odor	0.0	No
B22-6	25-29	No Petroleum Odor	0.0	No
B22-7	30	No Petroleum Odor	0.0	No
B22-8	35	No Petroleum Odor	0.0	Yes
B22-9	40	No Petroleum Odor	0.0	No
B22-10	45	No Petroleum Odor	0.0	Yes
B22-11	50	No Petroleum Odor	0.0	No
B22-12	55	No Petroleum Odor	0.0	No
B23-1	0-5	No Petroleum Odor	0.0	No
B23-2	5-10	No Petroleum Odor	0.0	No
B23-3	10-15	No Petroleum Odor	0.4	No
B23-4	15-20	No Petroleum Odor	0.1	No
B23-5	20-25	No Petroleum Odor	0.0	No
B23-6	25-30	No Petroleum Odor	0.1	No
B23-7	35	No Petroleum Odor	0.0	Yes
B23-8	40	No Petroleum Odor	0.0	No
B23-9	45	No Petroleum Odor	0.0	Yes
B23-10	50	No Petroleum Odor	0.0	No
B23-11	55	No Petroleum Odor	0.0	No
B24-1	0-5	Slight Petroleum Odor	279.2	Yes
B24-2	5-10	Strong Petroleum Odor	468.5	Yes
B24-3	10-15	Strong Petroleum Odor	492.1	Yes
B24-4	15-20	Strong Petroleum Odor	449.7	Yes
B24-5	20-25	Strong Petroleum Odor	480.6	Yes
B24-6	25-27	Strong Petroleum Odor	508.3	No
B24-7	30	Strong Petroleum Odor	458.7	Yes
B24-8	35	Petroleum Odor	202.6	Yes
B24-9	40	Petroleum Odor	339.7	Yes
B24-10	45	Petroleum Odor	65.6	Yes

Table 2 (Cont'd).

Summary of Field Screening Results

Sample Identification	Depth (feet bgs)	Olfactory Observation	PID Readings (ppm)	Retained for Analysis
B24-11	50	Petroleum Odor	74.4	No
B24-12	55	Strong Petroleum Odor	93.9	No
B25-1	0-5	Slight Petroleum Odor	135.7	Yes
B25-2	5-10	Slight Petroleum Odor	234.2	Yes
B25-3	10-15	Petroleum Odor	270.2	Yes
B25-4	15-20	Petroleum Odor	397.2	Yes
B25-5	20-25	Petroleum Odor	447.9	Yes
B25-6	25-27	Strong Petroleum Odor	651.7	No
B25-7	30	Petroleum Odor	101.4	Yes
B25-8	35	Petroleum Odor	108.3	Yes
B25-9	40	Petroleum Odor	78.2	Yes
B25-10	45	Slight Petroleum Odor	109.1	Yes
B25-11	50	Slight Petroleum Odor	21.8	No
B25-12	55	Slight Petroleum Odor	38.1	No
B26-1	0-5	No Petroleum Odor	0.0	No
B26-2	5-10	Slight Petroleum Odor	16.9	No
B26-3	10-15	Slight Petroleum Odor	25.7	No
B26-4	15-20	Petroleum Odor	138.7	No
B26-5	20-24.5	Petroleum Odor	123.9	No
B26-6	30	Slight Petroleum Odor	16.4	No
B26-7	35	Slight Petroleum Odor	15.2	Yes
B26-8	40	Slight Petroleum Odor	12.1	No
B26-9	45	Slight Petroleum Odor	14.6	Yes
B26-10	50	Slight Petroleum Odor	9.0	No
B26-11	55	Slight Petroleum Odor	12.4	No
B27-1	20	No Petroleum Odor	0.0	No
B27-2	40	No Petroleum Odor	0.0	No
B27-3	50	No Petroleum Odor	0.0	Yes
B27-4	60	No Petroleum Odor	0.0	Yes

Table 2 (Cont'd).

Summary of Field Screening Results

Sample Identification	Depth (feet bgs)	Olfactory Observation	PID Readings (ppm)	Retained for Analysis
B28-1	20	No Petroleum Odor	0.0	No
B28-2	40	No Petroleum Odor	0.0	No
B28-3	50	No Petroleum Odor	0.0	Yes
B28-4	60	No Petroleum Odor	0.0	Yes
B29-1	20	No Petroleum Odor	0.0	No
B29-2	30	No Petroleum Odor	0.0	Yes
B29-3	40	No Petroleum Odor	0.0	Yes

Table 3.

Summary of Soil Boring Residual Phase Analytical Results

Sample Identification	Date	Sample Depth (feet)	TPH-GRO[1]	TPH-DRO	Benzene[2]	Toluene	Ethyl-benzene	Xylenes (total)	MTBE	Naphthalene
B01-1	06/30/16	0-5	**13,200***	1,970	22.9	458	244	1,180	<25.0	48.5
B01-7	06/30/16	30-32.5	4,220	390	7.80[J]	167	64.0	367	<25.0	64.0
B02-3	06/30/16	10-15	6,110	1,240	<5.00	130	72.8	486	<25.0	57.4
B02-4	06/30/16	15-20	4,600	511	7.20[J]	183	80.8	471	<25.0	50.6
B04-4	06/30/16	15-20	<2.50	<3.97	<0.00200	0.00468	<0.00200	<0.00600	<0.0100	<0.00200
B05-4	06/30/16	15-20	<2.38	<3.97	<0.00198	0.00636	<0.00198	<0.00594	<0.00990	<0.00198
B07-4	06/30/16	15-20	<2.48	<3.98	<0.00198	<0.00198	<0.00198	<0.00594	<0.00990	<0.0125
B10-4	06/30/16	15-20	93.6	<3.97	<0.0125	0.0428	0.0138[J]	0.0732[J]	<0.0625	<0.0125
B11-1	06/30/16	0-5	3,400	1,100	<5.00	49.4	17.4	337	<25.0	<5.0
B11-4	06/30/16	15-20	**10,300***	1,030	32.9	601	182	1,360	<25.0	44.3
B12-1	06/30/16	0-5	381	23.9	0.0710[J]	2.12	1.23	13.4	1.03	1.08
B12-4	06/30/16	15-20	**25,900***	6,930	76.3	1,060	419	2,380	<25.0	174
B13-1	06/30/16	0-5	1,840	3,780	<0.500	<0.500	<0.500	2.57[J]	<2.50	4.32
B13-4	06/30/16	15-20	1,420	6,880	<0.500	<0.500	<0.500	252	<2.50	3.75
B15-4	06/30/16	15-20	<2.48	506	<0.00198	0.00550	<0.00198	<0.00594	<0.00990	<0.00198

Table 3 (Cont'd).

Summary of Soil Boring Residual Phase Analytical Results

Sample Identification	Date	Sample Depth (feet)	TPH-GRO[1]	TPH-DRO	Benzene[2]	Toluene	Ethyl-benzene	Xylenes (total)	MTBE	Naphthalene
B16-8	09/18/17	35	1.70[J]	NA[3]	<0.00194	<0.00194	<0.00194	<0.00388	<0.00970	<0.00194
B16-10	09/18/17	45	<1.25	NA	<0.00198	<0.00198	<0.00198	<0.00396	<0.00990	<0.00198
B17-3	09/18/17	10-15	<1.20	NA	<0.00198	<0.00198	<0.00198	<0.00396	<0.00990	<0.00198
B17-4	09/18/17	15-20	<1.25	NA	<0.00198	<0.00198	<0.00198	<0.00396	<0.00990	<0.00198
B17-5	09/18/17	20-25	<1.25	NA	<0.00194	<0.00194	<0.00194	<0.00388	<0.00970	<0.00194
B17-7	09/18/17	30	<1.22	NA	<0.00198	<0.00198	<0.00198	<0.00396	<0.00990	<0.00198
B17-8	09/18/17	35	<1.22	NA	<0.00198	<0.00198	<0.00198	<0.00396	<0.00990	<0.00198
B17-9	09/18/17	40	<1.18	NA	<0.00196	<0.00196	<0.00196	<0.00392	<0.00980	<0.00196
B17-10	09/18/17	45	<1.22	NA	<0.00194	<0.00194	<0.00194	<0.00388	<0.00970	<0.00194
B18-1[4]	09/18/17	0-5	**9,570***	NA	12.1	311[E]	191	1,044[E]	8.22	NA
B18-2	09/18/17	5-10	**15,700***	NA	24.6	984[E]	422	2,189[E]	8.30	154
B18-3	09/18/17	10-15	936	NA	0.740[J]	26.0	16.3	102.8	6.31	78.7
B18-4	09/18/17	15-20	3,170	NA	<0.500	82.0	51.2	362	<2.50	43.0
B18-5	09/18/17	20-25	**8,510***	NA	11.1	555[E]	209	1,204	5.35	71.8
B18-6[4]	09/18/17	25-30	3,910	NA	26.3	610[E]	258[E]	1,306[E]	11.6	NA
B18-8	09/20/17	35	2,830	NA	2.86	309	151	926	<2.50	62.6
B18-9	09/20/17	40	680	NA	<0.500	5.44	4.73	38.6	<2.50	4.92
B18-10	09/20/17	45	3,610	NA	9.17	260	76.8	401.1	3.13[J]	21.3
B19-1	09/18/17	0-5	**9,060***	NA	11.1	427	190	1,160	8.00	115
B19-2	09/18/17	5-10	4,580	NA	0.670[J]	150	96.1	610	<2.50	36.1
B19-3[4]	09/18/17	10-15	**12,600***	NA	23.1	588[E]	260[E]	1,283[E]	7.70	NA
B19-4	09/18/17	15-20	8,100	NA	4.56	433	189	1,068	<2.50	102
B19-5	09/18/17	20-25	5,450	NA	3.79	342	143	822	2.71[J]	94.4
B19-6[4]	09/18/17	25-30	5,830	NA	23.4	318[E]	107	564	20.3	NA
B19-8	09/21/17	35	6,930	NA	18.1	405	132	773	8.92	33.4
B19-9	09/21/17	40	2,630	NA	0.830[J]	209	29.0	182.2	<2.50	14.6
B19-10	09/21/17	45	637	NA	<0.200	0.593	0.678	4.70	<1.00	1.62
B20-8	09/19/17	35	1.34[J]	NA	<0.00194	0.00620	<0.00194	<0.00388	<0.00970	<0.00194
B20-10	09/19/17	45	<1.22	NA	0.00223[J]	0.04170	<0.00190	<0.00380	0.00955[J]	<0.00190

Table 3 (Cont'd).

Summary of Soil Boring Residual Phase Analytical Results

Sample Identification	Date	Sample Depth (feet)	TPH-GRO[1]	TPH-DRO	Benzene[2]	Toluene	Ethyl-benzene	Xylenes (total)	MTBE	Naphthalene
B21-7	09/19/17	35	<1.22	NA	<0.00198	0.00205[J]	<0.00198	<0.00396	<0.00990	<0.00198
B21-9	09/19/17	45	<1.22	NA	<0.00196	0.00251[J]	<0.00196	<0.00392	<0.00980	<0.00196
B22-8	09/19/17	35	<1.18	NA	<0.00196	<0.00196	<0.00196	<0.00392	<0.00980	<0.00196
B22-10	09/19/17	45	<1.20	NA	<0.002	<0.002	<0.002	<0.004	<0.010	<0.002
B23-7	09/20/17	35	<1.15	NA	<0.00198	<0.00198	<0.00198	<0.00396	<0.00990	<0.00198
B23-9	09/20/17	45	<1.12	NA	<0.00198	0.00515	<0.00198	<0.00396	<0.00990	<0.00198
B24-1[4]	09/20/17	0-5	168	6,310	<0.500	<0.500	<0.500	3.12	<0.00250	NA
B24-2	09/20/17	5-10	126	9,130	<0.00198	0.00259[J]	<0.00198	0.00894	<0.00990	<0.00198
B24-3	09/20/17	10-15	88.9	6,690	<0.00198	0.0155	0.00505	0.08284[E]	<0.00990	<0.00198
B24-4	09/20/17	15-20	112	7,910	0.00465	0.0166	0.0473	0.3982	<0.00990	<0.00198
B24-5[4]	09/20/17	20-25	1,740	**18,900***	<0.500	<0.500	1.04	8.53	<2.5	NA
B24-7	09/20/17	30	127	10,500	0.00927	0.0419	0.0840[E]	0.4840[E]	<0.00990	0.212[E]
B24-8	09/20/17	35	41.2	1,280	<0.0500	0.136	0.0790[J]	1.089	0.284[J]	0.837
B24-9	09/20/17	40	23.9	2,360	<0.00198	0.00507	0.01820	0.1267[E]	<0.00990	0.125[E]
B24-10	09/20/17	45	910	153	<0.00184	0.00447	0.00196[J]	0.00917[J]	<0.00920	0.0338
B25-1	09/21/17	0-5	1,280	NA	0.00232[J]	0.0219	0.00837	0.0750	0.180	0.00971
B25-2	09/21/17	5-10	1,090	NA	<0.00198	<0.00198	<0.00198	0.00246[J]	0.0552	0.0521
B25-3	09/21/17	10-15	1,360	NA	<0.00196	<0.00196	<0.00196	0.00230[J]	0.109	0.00964
B25-4	09/21/17	15-20	2,230	NA	<0.00198	<0.00198	<0.00198	0.00839[J]	0.314	0.00700
B25-5	09/21/17	20-25	<2.45	NA	<0.002	0.00250[J]	<0.002	0.00243[J]	0.223	0.0374
B25-7	09/21/17	30	<2.40	NA	<0.002	<0.002	<0.002	0.00236[J]	0.0184[J]	0.0334
B25-8	09/21/17	35	<2.40	NA	<0.00198	0.00486	<0.00198	0.00747[J]	<0.00990	33.6
B25-9	09/21/17	40	<2.40	NA	<0.00198	<0.00198	<0.00198	0.00242[J]	0.0109[J]	0.0169
B25-10	09/21/17	45	<2.45	NA	<0.00198	0.00206[J]	0.00213[J]	0.01167[J]	0.0255	0.166[J]

Table 3 (Cont'd).

Summary of Soil Boring Residual Phase Analytical Results

Sample Identification	Date	Sample Depth (feet)	TPH-GRO[1]	TPH-DRO	Benzene[2]	Toluene	Ethyl-benzene	Xylenes (total)	MTBE	Naphthalene
B26-2	09/21/17	5-10	<2.45	NA	<0.00198	0.00203[J]	<0.00198	0.00242[J]	0.0222	0.00695
B26-3	09/21/17	10-15	<2.50	NA	<0.00198	0.00320[J]	<0.00198	0.00251[J]	0.0572	0.0127
B26-4	09/21/17	15-20	<2.50	NA	<0.00198	0.00642	<0.00198	0.00656[J]	0.0769	0.0243
B26-5	09/21/17	20-24.5	<2.45	NA	<0.00198	<0.00198	<0.00198	0.00234[J]	0.0726	<0.00198
B26-6	09/21/17	30	<2.50	NA	<0.00198	0.00238[J]	<0.00198	0.00248[J]	0.0143[J]	0.00647
B26-7	09/21/17	35	<2.50	NA	<0.00198	<0.00198	<0.00198	0.00224[J]	0.0124[J]	0.00742
B26-8	09/21/17	40	<2.45	NA	<0.00198	0.00331[J]	<0.00198	0.00238[J]	<0.00990	0.00619
B26-9	09/21/17	45	<2.45	NA	<0.00196	<0.00196	<0.00196	<0.00392	0.0209	<0.00196
B27-3	08/14/18	50	<2.50	<3.98	<0.00176	<0.00176	<0.00176	<0.00352	<0.00880	<0.00176
B27-4	08/14/18	60	<2.48	<3.97	<0.00200	<0.00200	<0.00200	<0.00400	<0.0100	<0.00200
B28-3	08/23/18	50	<2.48	<3.97	<0.00194	<0.00194	<0.00194	<0.00388	<0.00970	<0.00194
B28-4	08/23/18	60	<2.48	<3.97	<0.00200	<0.00200	<0.00200	<0.00400	<0.0100	<0.00200
B29-2	09/04/18	30	<2.48	<3.98	<0.00174	<0.00174	<0.00174	<0.00348	<0.00870	<0.00174
B29-3	09/04/18	40	<2.50	<3.97	<0.00198	<0.00198	<0.00198	<0.00396	<0.00990	<0.00198

[1]TPH-GRO and TPH-DRO analysis via U.S. EPA SW-846 method 8015; reported in milligrams per kilogram (mg/kg).
[2]BTEX, MTBE, naphthalene analysis via U.S. EPA SW-846 method 8260; reported in mg/kg.
[3]NA = Not Analyzed.
[4]Soil sample also submitted for VOCSs analysis via EPA SW-846 method 8260. BTEX, MTBE, and naphthalene have been included in table. The full list of VOCs analyzed and the associated concentrations are provided on the laboratory analytical reports included with this report.
[J]The reported result is flagged with a J qualifier and is considered an estimate.
[E]The reported result is flagged with an E qualifier and is considered an estimate.
[*]**BOLD RED** = The reported result is above the value recognized by the VA DEQ as indicating petroleum saturation.

Table 4.

Summary of Groundwater Elevation Data

Location	Date	Relative Top of Casing Elevation[1] (feet)	Depth to Groundwater[2] (feet)	Relative Groundwater Elevation (feet)
MW01	09/27/17	1,059.26	45.45	1,013.81
	10/10/17		45.67	1,013.59
	05/29/18		48.51	1,010.75
	06/11/18		NA[3]	NA
	07/25/18		48.38	1,010.88
	08/15/18		48.32	1,010.94
	08/30/18		48.19	1,011.07
	09/21/18		47.98	1,011.28
	10/24/18		47.27	1,011.99
	11/27/18		46.94	1,012.32
	12/21/18		46.24	1,013.02
	01/28/19		44.55	1,014.71
	02/28/19		45.01	1,014.25
	03/20/19		44.03	1,015.23
	04/29/19		43.99	1,015.27
	05/29/19		43.35	1,015.91
	06/17/19		43.13	1,016.13
	07/22/19		42.73	1,016.53
	08/12/19		42.51	1,016.75
	09/27/19		42.68	1,016.58
	10/14/19		42.75	1,016.51
	10/18/19		42.67	1,016.59
	11/18/19		43.95	1,015.31
MW02	09/27/17	1,058.47	44.60	1,013.87
	10/10/17		44.83	1,013.64
	05/29/18		47.60	1,010.87
	06/11/18		NA	NA
	07/25/18		NA	NA
	08/15/18		47.36	1,011.11
	08/30/18		47.26	1,011.21
	09/21/18		47.05	1,011.42
	10/24/18		46.91	1,011.56
	11/27/18		45.92	1,012.55
	12/21/18		45.27	1,013.20

Table 4 (Cont'd).

Summary of Groundwater Elevation Data

Location	Date	Relative Top of Casing Elevation[1] (feet)	Depth to Groundwater[2] (feet)	Relative Groundwater Elevation (feet)
MW02 (Cont'd)	01/28/19	1,058.47	44.58	1,013.89
	02/28/19		44.02	1,014.45
	03/20/19		43.22	1,015.25
	04/29/19		43.01	1,015.46
	05/29/19		42.40	1,016.07
	06/17/19		42.20	1,016.27
	07/22/19		41.90	1,016.57
	08/12/19		41.76	1,016.71
	09/27/19		48.10	1,010.37
	10/14/19		41.90	1,016.57
	10/18/19		41.94	1,016.53
	11/18/19		42.02	1,016.45
MW03	09/27/17	1,058.66	44.87	1,013.79
	10/10/17		45.07	1,013.59
	05/29/18		47.83	1,010.83
	06/11/18		47.83	1,010.83
	07/25/18		NA	NA
	08/15/18		47.51	1,011.15
	08/30/18		47.41	1,011.25
	09/21/18		47.20	1,011.46
	10/24/18		46.71	1,011.95
	11/27/18		45.98	1,012.68
	12/21/18		45.30	1,013.36
	01/28/19		44.58	1,014.08
	02/28/19		44.01	1,014.65
	03/20/19		43.12	1,015.54
	04/29/19		43.03	1,015.63
	05/29/19		42.83	1,015.83
	06/17/19		42.19	1,016.47
	07/22/19		42.02	1,016.64
	08/12/19		42.04	1,016.62
	09/27/19		42.00	1,016.66
	10/14/19		42.19	1,016.47

Table 4 (Cont'd).

Summary of Groundwater Elevation Data

Location	Date	Relative Top of Casing Elevation[1] (feet)	Depth to Groundwater[2] (feet)	Relative Groundwater Elevation (feet)
MW03 Cont'd	10/18/19	1,058.66	42.22	1,016.44
	11/18/19		42.35	1,016.31
MW04	09/27/17	1,058.94	45.22	1,013.72
	10/10/17		45.44	1,013.50
	05/29/18		48.25	1,010.69
	06/11/18		48.21	1,010.73
	07/25/18		48.10	1,010.84
	08/15/18		47.90	1,011.04
	08/30/18		47.88	1,011.06
	09/21/18		47.81	1,011.13
	10/24/18		47.12	1,011.82
	11/27/18		46.39	1,012.55
	12/21/18		45.75	1,013.19
	01/28/19		44.96	1,013.98
	02/28/19		44.23	1,014.71
	03/20/19		43.97	1,014.97
	04/29/19		43.40	1,015.54
	05/29/19		42.45	1,016.49
	06/17/19		42.66	1,016.28
	07/22/19		42.94	1,016.00
	08/12/19		42.20	1,016.74
	09/27/19		42.13	1,016.81
	10/14/19		42.49	1,016.45
	10/18/19		42.54	1,016.40
	11/18/19		42.70	1,016.24
MW05	09/27/17	1,046.56	40.60	1,005.96
	10/10/17		40.93	1,005.63
	05/29/18		43.21	1,003.35
	06/11/18		NA	NA
	07/25/18		42.51	1,004.05
	08/15/18		42.17	1,004.39
	08/30/18		42.17	1,004.39
	09/21/18		40.36	1,006.20
	10/24/18		40.30	1,006.26

Table 4 (Cont'd).

Summary of Groundwater Elevation Data

Location	Date	Relative Top of Casing Elevation[1] (feet)	Depth to Groundwater[2] (feet)	Relative Groundwater Elevation (feet)
MW05 Cont'd	11/27/18	1,046.56	40.55	1,006.01
	12/21/18		39.62	1,006.94
	01/28/19		38.25	1,008.31
	02/28/19		37.77	1,008.79
	03/20/19		39.67	1,006.89
	04/29/19		36.55	1,010.01
	05/29/19		36.33	1,010.23
	06/17/19		36.65	1,009.91
	07/22/19		37.12	1,009.44
	08/12/19		37.01	1,009.55
	09/27/19		38.32	1,008.24
	10/14/19		38.56	1,008.00
	10/18/19		----	#VALUE!
	11/18/19		38.72	1,007.84
MW06	09/27/17	1,053.66	41.27	1,012.39
	10/10/17		41.61	1,012.05
	05/29/18		41.22	1,012.44
	06/11/18		NA	NA
	07/25/18		43.68	1,009.98
	08/15/18		43.56	1,010.10
	08/30/18		43.47	1,010.19
	09/21/18		40.93	1,012.73
	10/24/18		40.76	1,012.90
	11/27/18		41.84	1,011.82
	12/21/18		41.08	1,012.58
	01/28/19		40.25	1,013.41
	02/28/19		39.78	1,013.88
	03/20/19		40.76	1,012.90
	04/29/19		38.64	1,015.02
	05/29/19		38.15	1,015.51
	06/17/19		38.04	1,015.62
	07/22/19		37.92	1,015.74
	08/12/19		37.73	1,015.93
	09/27/19		38.52	1,015.14

Table 4 (Cont'd).

Summary of Groundwater Elevation Data

Location	Date	Relative Top of Casing Elevation[1] (feet)	Depth to Groundwater[2] (feet)	Relative Groundwater Elevation (feet)
MW06 Cont'd	10/14/19	1,053.66	38.69	1,014.97
	10/18/19		----	#VALUE!
	11/18/19		39.00	1,014.66
MW07	09/27/17	1,056.61	44.70	1,011.91
	10/10/17		45.03	1,011.58
	05/29/18		48.34	1,008.27
	06/11/18		NA	NA
	07/25/18		47.25	1,009.36
	08/15/18		47.20	1,009.41
	08/30/18		47.19	1,009.42
	09/21/18		46.92	1,009.69
	10/24/18		46.67	1,009.94
	11/27/18		46.36	1,010.25
	12/21/18		44.14	1,012.47
	01/28/19		44.60	1,012.01
	02/28/19		42.81	1,013.80
	03/20/19		44.15	1,012.46
	04/29/19		42.01	1,014.60
	05/29/19		41.48	1,015.13
	06/17/19		41.44	1,015.17
	07/22/19		34.34	1,022.27
	08/12/19		34.31	1,022.30
	09/27/19		42.00	1,014.61
	10/14/19		42.22	1,014.39
	10/18/19		42.36	1,014.25
	11/18/19		42.53	1,014.08
MW08	09/27/17	1,057.72	45.57	1,012.15
	10/10/17		45.92	1,011.80
	05/29/18		49.06	1,008.66
	06/11/18		NA	NA
	07/25/18		48.26	1,009.46
	08/15/18		48.09	1,009.63
	08/30/18		48.04	1,009.68
	09/21/18		47.83	1,009.89

Table 4 (Cont'd).

Summary of Groundwater Elevation Data

Location	Date	Relative Top of Casing Elevation[1] (feet)	Depth to Groundwater[2] (feet)	Relative Groundwater Elevation (feet)
MW08 Cont'd	10/24/18	1,057.72	47.78	1,009.94
	11/27/18		46.23	1,011.49
	12/21/18		45.50	1,012.22
	01/28/19		44.26	1,013.46
	02/28/19		43.72	1,014.00
	03/20/19		43.98	1,013.74
	04/29/19		42.90	1,014.82
	05/29/19		42.32	1,015.40
	06/17/19		42.32	1,015.40
	07/22/19		32.23	1,025.49
	08/12/19		32.27	1,025.45
	09/27/19		42.33	1,015.39
	10/14/19		42.64	1,015.08
	10/18/19		43.15	1,014.57
	11/18/19		43.29	1,014.43
MW09	09/27/17	1,059.41	47.61	1,011.80
	10/10/17		46.88	1,012.53
	05/29/18		49.90	1,009.51
	06/11/18		NA	NA
	07/25/18		49.29	1,010.12
	08/15/18		49.21	1,010.20
	08/30/18		48.13	1,011.28
	09/21/18		48.97	1,010.44
	10/24/18		48.42	1,010.99
	11/27/18		47.47	1,011.94
	12/21/18		44.61	1,014.80
	01/28/19		45.88	1,013.53
	02/28/19		46.46	1,012.95
	03/20/19		45.74	1,013.67
	04/29/19		44.38	1,015.03
	05/29/19		43.67	1,015.74
	06/17/19		43.65	1,015.76
	07/22/19		43.22	1,016.19
	08/12/19		43.12	1,016.29

Table 4 (Cont'd).

Summary of Groundwater Elevation Data

Location	Date	Relative Top of Casing Elevation[1] (feet)	Depth to Groundwater[2] (feet)	Relative Groundwater Elevation (feet)
MW09 Cont'd	09/27/19	1,059.41	43.82	1,015.59
	10/14/19		43.88	1,015.53
	10/18/19		43.97	1,015.44
	11/18/19		44.07	1,015.34
MW10	09/27/17	1,058.29	46.14	1,012.15
	10/10/17		45.59	1,012.70
	05/29/18		48.59	1,009.70
	06/11/18		NA	NA
	07/25/18		48.05	1,010.24
	08/15/18		47.95	1,010.34
	08/30/18		47.87	1,010.42
	09/21/18		47.69	1,010.60
	10/24/18		47.34	1,010.95
	11/27/18		46.39	1,011.90
	12/21/18		45.60	1,012.69
	01/28/19		44.74	1,013.55
	02/28/19		44.19	1,014.10
	03/20/19		44.63	1,013.66
	04/29/19		43.19	1,015.10
	05/29/19		42.60	1,015.69
	06/17/19		42.48	1,015.81
	07/22/19		42.20	1,016.09
	08/12/19		41.66	1,016.63
	09/27/19		42.54	1,015.75
	10/14/19		42.66	1,015.63
	10/18/19		42.71	1,015.58
	11/18/19		42.86	1,015.43
MW11	09/27/17	1,057.86	45.19	1,012.67
	10/10/17		45.05	1,012.81
	05/29/18		48.06	1,009.80
	06/11/18		NA	NA
	07/25/18		47.49	1,010.37
	08/15/18		47.40	1,010.46
	08/30/18		47.36	1,010.50

Table 4 (Cont'd).

Summary of Groundwater Elevation Data

Location	Date	Relative Top of Casing Elevation[1] (feet)	Depth to Groundwater[2] (feet)	Relative Groundwater Elevation (feet)
MW11 Cont'd	09/21/18	1,057.86	47.12	1,010.74
	10/24/18		46.88	1,010.98
	11/27/18		45.82	1,012.04
	12/21/18		45.06	1,012.80
	01/28/19		44.23	1,013.63
	02/28/19		44.61	1,013.25
	03/20/19		43.19	1,014.67
	04/29/19		42.69	1,015.17
	05/29/19		42.10	1,015.76
	06/17/19		41.92	1,015.94
	07/22/19		41.76	1,016.10
	08/12/19		-----	#VALUE!
	09/27/19		42.04	1,015.82
	10/14/19		42.14	1,015.72
	10/18/19		42.17	1,015.69
	11/18/19		42.32	1,015.54

[1]Elevations measured by Greene relative to an approximate site elevation of 479 feet.
[2]If free phase petroleum was observed, depth to groundwater was calculated using an assumed gasoline density of 0.729 g/ml.
[3]NA = Not Applicable.

Table 5.

Summary of Free Product Thicknesses

Well Identification	Date	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)
MW03	09/27/17	NA[1]	44.87	NA
	10/10/17	NA	45.07	NA
	05/29/18	47.71	48.16	0.45
	06/11/18	47.74	48.09	0.35
	07/25/18	NA	NA	NA
	08/15/18	47.49	47.56	0.07
	08/30/18	47.39	47.48	0.09
	09/21/18	47.19	47.24	0.05
	10/24/18	46.70	46.74	0.04
	11/27/18	45.98	45.99	0.01
	12/21/18	NA	45.30	0.00
	01/28/19	NA	44.58	0.00
	02/28/19	NA	44.01	0.00
	03/20/19	NA	43.12	0.00
	04/29/19	NA	43.03	0.00
	05/29/19	NA	42.83	0.00
	06/17/19	NA	42.19	0.00
	07/22/19	41.95	42.22	0.27
	08/12/19	41.96	42.24	0.28
	09/27/19	41.93	42.20	0.27
	10/14/19	42.01	42.68	0.67
	10/18/19	42.06	42.66	0.60
	11/18/19	42.32	42.43	0.11
MW04	09/27/17	NA[1]	45.22	NA
	10/10/17	45.44	45.45	0.01
	05/29/18	48.25	48.26	0.01
	06/11/18	NA	48.21	NA
	07/25/18	NA	48.10	NA
	08/15/18	NA	47.90	NA
	08/30/18	NA	47.88	NA
	09/21/18	NA	47.81	NA
	10/24/18	NA	47.12	NA
	11/27/18	NA	46.39	NA
	12/21/18	NA	45.75	NA

Table 5 (Cont'd).

Summary of Free Product Thicknesses

Well Identification	Date	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)
MW04 Cont'd	01/28/19	NA	44.96	NA
	02/28/19	NA	44.23	NA
	03/20/19	NA	43.97	NA
	04/29/19	NA	43.40	NA
	05/29/19	NA	42.45	NA
	06/17/19	NA	42.66	NA
	07/22/19	NA	42.94	NA
	08/12/19	NA	42.20	NA
	09/27/19	NA	42.13	NA
	10/14/19	NA	42.49	NA
	10/18/19	NA	42.54	NA
	11/18/19	NA	42.70	NA

[1]NA = Not Applicable.

Table 6.

Summary of Calculated Purge Volumes

Well Identification	Date	Depth to Product (feet)	Depth to Water (feet)	Amount of Product (feet)	Total Well Depth (feet)	Water Column[1] (feet)	Well Diameter (inches)	Conversion Factor (gallons/feet)	Purge Volume (gallons)
MW01	10/14/19	NA[2]	42.75	0.00	54.59	11.84	2.0	0.163	5.79
MW02	10/14/19	NA	41.90	0.00	55.21	13.31	2.0	0.163	6.51
MW03	10/14/19	42.01	42.68	0.67	55.02	12.83	2.0	0.163	6.27
MW04	10/14/19	NA	42.49	0.00	54.96	12.47	2.0	0.163	6.10
MW05	10/14/19	NA	38.56	0.00	55.22	16.66	2.0	0.163	8.15
MW06	10/14/19	NA	38.69	0.00	55.03	16.34	2.0	0.163	7.99
MW07	10/14/19	NA	42.22	0.00	54.92	12.70	2.0	0.163	6.21
MW08	10/14/19	NA	42.64	0.00	55.04	12.40	2.0	0.163	6.06
MW09	10/14/19	NA	43.88	0.00	55.27	11.39	2.0	0.163	5.57
MW10	10/14/19	NA	42.66	0.00	55.13	12.47	2.0	0.163	6.10
MW11	10/14/19	NA	42.14	0.00	55.22	13.08	2.0	0.163	6.40
MW12	04/03/19	NA	60.69	0.00	257.69	197.00	6.0	1.47	868.77
MW13	04/03/19	NA	44.11	0.00	293.20	249.09	6.0	1.47	1,098.49
MW14	04/03/19	NA	33.44	0.00	206.34	172.9	6.0	1.47	762.49

[1]If free phase petroleum was observed, actual water column was calculated using an assumed gasoline density of 0.729 g/ml.
[2]NA = Not applicable.

Table 7.

Summary of Monitoring Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	TPH-DRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane	Ethylene Dibromide	Tert-Amyl Alcohol	Tert-Amyl Ethyl Ether	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Tert-Butyl Ethyl Ether	Di-Isopropyl Ether	Ethanol	Total Lead	Dissolved Lead
MW01	10/10/17	1,620	NA[2]	<0.5	0.900[J]	0.820[J]	5.19	58.2	<0.5	<0.00751	2.32	<0.5	<0.5	<0.5	2,180	<0.5	4.53[J]	<100	20.3	<0.2
	08/30/18	1,140	1,070	<0.500	<0.500	0.520[J]	0.770	45.7	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	194	8,900	<2.0	<2.0	<2.0	<2.0	30.3	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW02	10/10/17	7,920	NA	25.8	157	20.1	534.5	553	74.9	<0.394	50.7	<5.0	<5.0	<5.0	2,030	<5.0	<25.0	<1,000	220	<0.2
	08/30/18	10,200	1,680	104	141	98.0[J]	2,650	1,950	352	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	3,650	20,600	38.6[J]	60.6	35.8[J]	891	1,260	154	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW03	10/11/17	302,000	NA	6,950	29,900[E]	3,790	18,400	7,510	999	<3.93	161	<5.0	<5.0	<5.0	8,790	<5.0	136	<1,000	333	13.9
	08/30/18	314,000	15,400	9,650	40,300[E]	3,890	19,400	14,400	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	124,000	189,000	10,600	43,200	3,260	17,380	23,400	<1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW04	10/11/17	356,000	NA	18,500	53,700[E]	3,880	18,300	12,700	1,730	<3.76	656	<5.0	<5.0	<5.0	10,900	<5.0	273	<1,000	594	502
	08/30/18	297,000	3,160	12,100	1,150	3,320	16,100	20,200	2,120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	173,000	139,000	17,300	51,200	3,230	15,770	42,900	<1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW05	10/10/17	<250	NA	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.00754	<496	<0.5	<0.5	<0.5	<100	<0.5	<2.5	<100	19.2	<0.2
	08/30/18	<250	<122	190	816	118	704	177[J]	2,130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	<100	<250	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7 (Cont'd).

Summary of Monitoring Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	TPH-DRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane	Ethylene Dibromide	Tert-Amyl Alcohol	Tert-Amyl Ethyl Ether	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Tert-Butyl Ethyl Ether	Di-Isopropyl Ether	Ethanol	Total Lead	Dissolved Lead
MW06	10/10/17	<250	NA	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.00747	<492	<0.5	<0.5	<0.5	<100	<0.5	<2.5	<100	1.96	0.553[J]
	08/30/18	<250	<121	<0.500	<0.500	<0.500	ND[3]	<1.00	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	<100	<220	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW07	10/10/17	<250	NA	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.00753	<495	<0.5	<0.5	<0.5	<100	<0.5	<2.5	<100	19.5	0.233[J]
	08/30/18	<250	<122	<0.500	<0.500	<0.500	ND	<1.00	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	<100	<210	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW08	10/10/17	<250	NA	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.00758	<499	<0.5	<0.5	<0.5	<100	<0.5	<2.5	<100	148	<0.2
	08/30/18	<250	2,790	<0.500	0.870[J]	<0.500	ND	<1.00	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	<100	<200	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW09	10/11/17	8,750	NA	293	711	150	455	3,700	78.0	<0.00744	<490	<5.0	<5.0	<5.0	3,670	<5.0	151	<1,000	35.3	3.79
	08/30/18	24,600	1,420	1,200	4,000	709	3,450	10,400	1,450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	2,940	60,800	40.2[J]	143	24.6	101.6[J]	1,810	<20.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW10	10/11/17	78,800	NA	3,860[E]	2,490	441	6,470	29,400[E]	1,060	<0.0800	9.37	<5.0	<5.0	330[E]	20,300	<5.0	449	<1,000	289	<0.2
	08/30/18	59,200	2,520	710[J]	<500	<500	810	9,870	1,310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	50,100	27,700	3,750	4,450	833	6,710	26,600	737[J]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 7 (Cont'd).

Summary of Monitoring Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	TPH-DRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane	Ethylene Dibromide	Tert-Amyl Alcohol	Tert-Amyl Ethyl Ether	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Tert-Butyl Ethyl Ether	Di-Isopropyl Ether	Ethanol	Total Lead	Dissolved Lead
MW11	10/10/17	16,500	NA	2,370	1,060	425	1,998.6	15,600[E]	253	<0.00754	<496	<5.0	<5.0	121	10,900	<5.0	166	<1,000	13.4	<0.2
	08/30/18	13,100	2,500	1,840	938	419	2,680	23,500[E]	1,950	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	15,800	20,000	649	<200	<200	660	8,600	<200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW12	11/29/18	<250	NA	<0.500	<0.500	<0.500	ND	<1.00	<0.500	<0.00762	<0.00391	<0.5	<0.5	<0.5	<100	<0.5	<2.5	<100	<0.2	<0.2
	04/03/19	<220	NA	<0.500	<0.500	<0.500	ND	<1.00	<0.500	<0.00764	<0.00392	<0.361	<0.368	<0.5	<50.0	<0.5	<100	<2.5	1.81	<0.2
MW13	11/29/18	<250	NA	<0.500	<0.500	<0.500	ND	<1.00	<0.500	<0.00744	<0.00382	<0.5	<0.5	<0.5	<100	<0.5	<2.5	<100	<0.2	<0.2
	04/03/19	<220	NA	<0.500	<0.500	<0.500	ND	<1.00	<0.500	<0.00754	<0.00387	<0.361	<0.368	<0.5	<50.0	<0.5	<100	<2.5	0.380[J]	<0.2
MW14	11/29/18	<250	NA	<0.500	<0.500	<0.500	ND	<1.00	<0.500	<0.00762	<0.00391	<0.5	<0.5	<0.5	<100	<0.5	<2.5	<100	0.309[J]	<0.2
	04/03/19	<220	NA	<0.500	<0.500	<0.500	ND	<1.00	<0.500	<0.00762	<0.00391	<0.361	<0.368	<0.5	<50.0	<0.5	<100	<2.5	1.68	<0.2

[1]Monitoring well samples were submitted for TPH-GRO & TPH-DRO analysis via EPA method 8015, VOCs analysis via EPA method 8260, SVOCs analysis via EPA method 8270, EDB/DBCP analysis via EPA method 8011, and total/dissolved lead analysis via EPA method 200.8; reported in micrograms per liter (µg/L). Only select analytes have been included in the table. The full list of VOCs and SVOCs analyzed and the associated concentrations are provided on the laboratory analytical reports.
[2]NA = Not Applicable.
[3]ND = Non Detected.
[J]The reported result is flagged with a J qualifier and is considered an estimate.
[E]The reported result is flagged with an E qualifier and is considered an estimate.

Table 8.

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW01A	06/16/17	NA[2]	751	0.590[J]	18.9	ND[3]	604	NA	NA	NA	NA	NA	NA	NA	NA	NA	80.0	ND	5.76	1.31	2.01	4.86	26.1	4.15	ND	ND	ND	ND	ND	NA	NA
	06/26/17[4]	NA	749	ND	56.4	540	797	44.7	ND	0.400	2,320	ND	388	52.4	NA	NA	83.3	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/11/17	7,020	1,070	2.02	68.6	725.2	603	18.5	ND	ND	ND	ND	ND	58.2	5.68	0.285[J]	ND	ND	ND	ND	2.20	12.6	ND	13.1	272	90.1	ND	ND	7.86[J]	ND
	11/13/17[4]	NA	724	ND	59.3	630	751	42.4	ND	ND	2,270	ND	440	48.3	NA	NA	72.1	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	03/12/18[4]	NA	541	ND	43.0	490	559	34.3	ND	ND	1,480	ND	199	40.0	NA	NA	50.8	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	08/30/18	5,060	310	1.16	11.1	120	622	63.0	0.0193	0.401	ND	ND	ND	46.1	3.04	1.34	ND	ND	ND	ND	1.93	11.2	ND	12.2	ND	ND	ND	ND	16.4	ND
	09/19/18[4]	NA	633	ND	60.0	326	811	49.4	ND	ND	2,260	ND	358	47.1	NA	NA	66.6	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	0.791	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	0.530	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/14/19[4]	NA	1,290	ND	79.3	532	1,730	77.8	ND	ND	4,020	8.9	864	104	NA	NA	124	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/14/19	NA	662	ND	41.5	435	650	34.4	ND	0.592	971	ND	187	33.0	NA	NA	35.1	ND	ND	ND	ND	5.6[J]	ND	6.3[J]	206	53.6	ND	ND	NA	NA
DW01B	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	11/12/19[4]	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW02A	06/05/17[5]	994	2.91	ND	ND	ND	138	ND	ND	ND	ND	ND	ND	8.55	NA	NA	23.1	ND	ND	ND	ND	ND	ND	ND	9.04	ND	ND	ND	NA	NA
	10/06/17[4]	NA	3.0	ND	ND	1.1[J]	176	ND	ND	ND	544	0.8[J]	113	10.4	NA	NA	29.4	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/10/17	ND	3.11	ND	ND	0.760[J]	170	ND	ND	ND	ND	ND	ND	13.2	ND	ND	ND	ND	ND	ND	1.01	ND	ND	ND	14.8	ND	ND	ND	ND	ND
	02/07/18[4]	NA	2.8	ND	ND	1.0[J]	184	ND	ND	ND	643	0.8[J]	148	10.4	NA	NA	30.0	165	NA	NA	0.5[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND
	07/18/18[4]	NA	2.0[J]	ND	ND	0.7[J]	142	ND	ND	ND	466	0.7[J]	89.3	8.7	NA	NA	19.2	ND	NA	NA	0.6[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/30/18	ND	2.69	ND	ND	1.23	148	ND	ND	0.00901[J]	ND	ND	ND	10.1	0.324[J]	ND	22.8	ND	ND	ND	0.640[J]	ND	ND	ND	15.0	ND	ND	ND	ND	ND
	12/07/18[4]	NA	1.6[J]	ND	ND	0.7[J]	121	ND	ND	ND	293	0.6[J]	51.1	7.1	NA	NA	14.9	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	05/14/19[4]	NA	1.3	ND	ND	0.8	113	ND	ND	ND	311	0.6	74.1	6.7	NA	NA	12.0	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/14/19	NA	1.9[J]	ND	ND	1.3[J]	174	ND	ND	ND	287	ND	74.7	10.3	NA	NA	17.9	ND	ND	ND	ND	ND	ND	ND	7.3	ND	ND	ND	NA	NA
DW02C	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	11/12/19[4]	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
DW03A	06/16/17	NA	ND	ND	ND	ND	10.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.37	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	06/28/17[4]	NA	ND	ND	ND	ND	19.7	ND	ND	ND	ND	ND	ND	2.0[J]	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	09/11/17[4]	NA	ND	ND	ND	ND	87.4	ND	ND	ND	118	ND	22.4	8.1	NA	NA	5.6	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/10/17	ND	ND	ND	ND	ND	36.8	ND	ND	ND	ND	ND	ND	4.06[J]	13.2	0.649[J]	ND	ND	ND	ND	ND	ND	ND	ND	2.92	1.01	ND	ND	ND	ND

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW03A (Cont'd)	12/15/17[4]	NA	ND	ND	ND	ND	17.4	ND	ND	ND	22.1	ND	ND	1.4[J]	NA	NA	0.7[J]	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	05/31/18[4]	NA	ND	ND	ND	ND	42.8	ND	ND	ND	44.7	ND	ND	4.2	NA	NA	2.1	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	08/30/18	ND	ND	ND	ND	ND	80.8	ND	ND	0.00796[J]	ND	ND	ND	5.23	1.95	0.449[J]	7.40	ND	ND	ND	ND	ND	ND	ND	18.7	4.85	ND	ND	ND	ND
	12/07/18[4]	NA	ND	ND	ND	ND	101	ND	ND	ND	159	ND	25.0	8.5	NA	NA	5.1	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	06/19/19[4]	NA	ND	ND	ND	ND	30.6	ND	ND	ND	ND	ND	ND	2.7	NA	NA	2.4	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW03B	09/18/17	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	08/30/18	ND	ND	ND	ND	ND	ND	ND	0.0186[J,6]	0.0124[J,6]	ND	ND	ND	ND	2.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW03C	09/20/19[4]	NA	ND	ND	ND	0.8[J]	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW04A	06/16/17	NA	3.56	ND	ND	ND	10.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.85	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	07/06/17[4]	NA	3.0	ND	ND	ND	13.5	ND	ND	ND	68.8	ND	ND	1.6[J]	NA	NA	2.7	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/06/17[4]	NA	2.9	ND	ND	ND	13.1	ND	ND	ND	57.7	ND	ND	1.7[J]	NA	NA	2.5	10.3	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/10/17	ND	3.56	ND	ND	ND	15.3	ND	ND	ND	ND	ND	ND	ND	0.515[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW04A (Cont'd)	02/16/18[4]	NA	3.1	ND	ND	ND	17.0	ND	ND	ND	73.6	ND	ND	2.0	NA	NA	3.0	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	05/31/18[4]	NA	0.7	ND	ND	ND	16.0	ND	ND	ND	83.8	ND	ND	1.8	NA	NA	2.5	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	08/31/18	ND	3.66	ND	ND	ND	19.3	ND	ND	0.00602[J]	ND	ND	ND	ND	ND	ND	3.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	09/27/18[4]	NA	2.8	ND	ND	ND	19.7	ND	ND	ND	92.3	ND	ND	2.1	NA	NA	3.1	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	01/18/19[4]	NA	2.9	ND	ND	ND	25.3	ND	ND	ND	135	ND	18.5	2.8	NA	NA	4.0	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	05/14/19[4]	NA	2.8	ND	ND	ND	28.6	ND	ND	ND	109	ND	23.6	2.8	NA	NA	4.6	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	09/06/19[4]	NA	2.1	ND	ND	ND	31.5	ND	ND	ND	117	ND	23.3	1.6[J]	NA	NA	6.2	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/14/19	NA	2.4	ND	ND	ND	26.5	ND	ND	ND	64.1	ND	ND	2.3	NA	NA	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW04B	11/28/17	ND	ND	ND	ND	ND	1.48[J]	0.950[J]	ND	ND	ND	ND	ND	ND	79.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.99	ND	ND	ND
	08/31/18	ND	ND	ND	ND	ND	ND	ND	0.0147[J,6]	0.0138[J,6]	ND	ND	ND	ND	7.18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.3	ND	NA	NA
DW05A	06/20/17	NA	ND	ND	ND	ND	1.61[J]	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	06/27/17[4]	NA	ND	ND	ND	ND	1.9[J]	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/11/17[4]	NA	ND	ND	ND	ND	1.9[J]	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/11/17	ND	ND	ND	ND	ND	4.77[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW05A (Cont'd)	01/09/18[4]	NA	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	08/22/18[4]	NA	ND	ND	ND	ND	3.1	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	08/30/18	ND	ND	ND	ND	ND	2.85[J]	ND	0.0200	0.0170[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	01/04/19[4]	NA	ND	ND	ND	ND	3.9	ND	ND	ND	ND	ND	ND	ND	NA	NA	0.5[J]	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	05/14/19[4]	NA	ND	ND	ND	ND	2.6	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/14/19	NA	ND	ND	ND	ND	3.1	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW06B	06/20/17	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	10/10/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.72	3.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/30/18	ND	ND	ND	ND	ND	ND	ND	0.0142[J,6]	0.0112[J,6]	ND	ND	ND	ND	33.8	1.64	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW06C	10/10/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12.0	0.423[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/30/18	ND	ND	ND	ND	ND	ND	ND	0.0314[6]	0.0264[6]	ND	ND	ND	ND	80.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW06C (Cont'd)	01/04/19[4]	NA	ND	0.9[J]	ND	ND	1.1[J]	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	01/31/19[4]	NA	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	02/07/19	ND	ND	ND	ND	ND	1.59[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW07A	06/20/17	NA	ND	ND	ND	ND	2.33[J]	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	06/28/17[4]	NA	ND	ND	ND	ND	3.7	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/10/17	ND	ND	ND	ND	ND	5.40	ND	ND	ND	ND	ND	ND	ND	5.06	0.513[J]	0.6[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/11/17[4]	NA	ND	ND	ND	ND	3.8	ND	ND	ND	ND	ND	ND	ND	NA	NA	0.8[J]	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	01/09/18[4]	NA	ND	ND	ND	ND	4.1	ND	ND	ND	ND	ND	ND	ND	NA	NA	0.7	6,100	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	08/16/18[4]	NA	ND	ND	ND	ND	4.5	ND	ND	ND	ND	ND	ND	0.6[J]	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	08/22/18[4]	NA	ND	ND	ND	ND	5.2	ND	ND	ND	41.6	ND	ND	ND	NA	NA	0.8[J]	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	08/30/18	ND	ND	ND	ND	ND	5.55	ND	0.0138[J]	0.0108[J]	ND	ND	ND	ND	17.5	1.53	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/07/18[4]	NA	ND	ND	ND	ND	6.9	ND	ND	ND	20.3	ND	ND	0.8[J]	NA	NA	0.9[J]	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	05/14/19[4]	NA	ND	ND	ND	ND	8.9	ND	ND	ND	31.7	ND	ND	0.9[J]	NA	NA	1.2[J]	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW07A (Cont'd)	09/06/19[4]	N	0.6[J]	ND	ND	ND	8.5	ND	ND	ND	26.6	ND	ND	0.5[J]	NA	NA	1.5[J]	ND	NA	NA	ND	NA	ND	NA	NA	NA	ND	ND	NA	NA
	10/14/19	NA	ND	ND	ND	ND	6.1	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW08A	07/03/17	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	77.8	4.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/31/18	ND	ND	ND	ND	ND	ND	ND	0.0135[J,6]	0.00729[J,6]	ND	ND	ND	ND	3.08	1.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/03/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW08B	07/03/17	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	66.6	10.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.32	ND	ND
	08/31/18	ND	ND	ND	ND	ND	ND	ND	0.0176[J,6]	0.0124[J,6]	ND	ND	ND	ND	5.90	2.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/03/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW09A	06/16/17	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	06/20/17	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	10/10/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.407[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/31/18	ND	ND	ND	ND	ND	ND	ND	0.0225[6]	0.0123[J,6]	ND	ND	ND	ND	0.402[J]	0.243[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW09B	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/31/18	ND	ND	ND	ND	ND	ND	ND	0.0201[J,6]	0.0191[J,6]	ND	ND	ND	ND	0.282[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW10A	10/02/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/30/18	ND	ND	ND	ND	ND	ND	ND	0.0163[J,6]	0.0132[J,6]	ND	ND	ND	ND	4.31	0.606[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW11A	06/20/17	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.30	0.471[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	08/30/18	ND	ND	ND	ND	ND	ND	ND	0.0232[6]	0.0151[J,6]	ND	ND	ND	ND	1.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/10/18	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW12A	06/20/17	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.29	0.703[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW13A	11/01/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW13B	11/28/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.29[3]
DW14A	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	113	14.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW15A	10/02/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.18	1.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.30[3]	ND

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW16A	10/10/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.638[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW17A	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	46.3	0.529[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW17B	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW18A	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.753[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW19A	06/16/17	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	06/28/17	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW31A	06/16/17	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	06/28/17	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW32A	06/16/17	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	06/28/17	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

Table 8 (Cont'd).

Summary of Supply Well Dissolved Phase Analytical Results[1]

Sample ID	Date	TPH-GRO	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Dibromochloropropane (DBCP)	Ethylene Dibromide (EDB)	Tert-Amyl Alcohol	Tert-Amyl Methyl Ether	Tert-Butyl Alcohol	Di-Isopropyl Ether (DIPE)	Total Lead	Dissolved Lead	1,2-Dichloroethane	2-Butanone (MEK)	2-Chlorotoluene	4-Chlorotoluene	1,2-Dichloropropane	Isopropylbenzene	4-Methyl-2-pentanone	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Methylene Chloride	Tertrachloroethene	Phenol	Dimethyl phthalate
DW33A	06/16/17	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	06/28/17	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.78	0.345[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW33B	10/14/19	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
DW40A	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.758[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DW41A	10/11/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.00	0.628[J]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

[1]Supply well samples were submitted for TPH-GRO analysis via EPA method 8015, VOCs analysis via EPA method 8021/8260, SVOCs analysis via EPA method 8270, EDB/DBCP analysis via EPA method 8011/504.1, and total/dissolved lead analysis via EPA method 200.8; reported in micrograms per liter (µg/L). Only select analytes have been included in the table. The full list of VOCs and SVOCs analyzed and the associated concentrations are provided on the laboratory analytical reports.
[2]NA = Not Analyzed.
[3]ND = Non Detected.
[4]Sampling performed by VA DEQ AWS contractor.
[5]Sampling performed by VA DEQ State Lead contractor.
[6]The reported result is likely inaccurate due to a suspected laboratory error.
[J]The reported result is flagged with a J qualifier and is considered an estimate.

Table 9.

Summary of Surface Water Dissolved Phase Analytical Results

Sample ID	Sample Date	TPH-GRO[1] (µg/L)	VOCs[2] (µg/L)	EDB/DBCP[3] (µg/L)
POND01 (Pond Outfall)	09/18/17	ND	ND for all analyzed VOCs via 8260	ND for EDB and DBCP via 8011
POND01 (Pond)	09/18/17	ND[4]	ND for all analyzed VOCs via 8260	ND for EDB and DBCP via 8011
	08/31/18	ND	ND for all analyzed VOCs via 8260	EDB = 0.0124[J] DBCP = 0.0206
	10/10/18	NA[5]	NA	ND for EDB and DBCP via 8011
	10/10/18	NA	NA	ND for EDB and DBCP via 8011
	10/14/19	NA	ND for all analyzed VOCs via 8260	NA
ST01 (Intermittent Tributary)	09/18/17	ND	Toluene = 6.20[J] ND for all other analyzed VOCs via 8260	ND for EDB and DBCP via 8011
	08/31/18	ND	ND for all analyzed VOCs via 8260	EDB = 0.0111[J] DBCP = 0.0182[J]
	10/10/18	NA	NA	ND for EDB and DBCP via 8011
	10/14/19	NA	ND for all analyzed VOCs via 8260	NA
POND04	05/24/18	ND	NA	NA

[1]TPH-GRO analysis via U.S. EPA SW-846 method 8015; reported in micrograms per liter (µg/L).
[2]VOCs analysis via U.S. EPA SW-846 method 8260; reported in µg/L.
[3]EDB/DBCP analysis via U.S. EPA SW-846 method 8011; reported in µg/L.
[4]ND = Non Detected at laboratory method detection limits.
[5]NA = Not Applicable.
[J]The reported result is flagged with a J qualifier and is considered an estimate.

Table 10.

Summary of Supply Well Discrete Sampling Dissolved Phase Analytical Results[1]

Sample ID	Date	Depth (feet)	Benzene	Toluene	Ethylbenzene	Xylenes (total)	MTBE	Naphthalene	Di-Isopropyl Ether	Sec-Butylbenzene	Acetone	Chloroform	1,2-Dichloroethane	1,2-Dichloropropane	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	2-Butanone (MEK)	1,2-Dibromoethane (EDB)
DW01A	11/29/17	88	36.4	ND[2]	11.8	270	209	30.3	26.6	0.540[3]	ND	6.58	10.1	ND	2.16	2.07	88.8	24.4	1.78	ND	ND
		108	95.7	0.610[3]	20.4	289	217	34.6	26.4	0.670[3]	ND	5.82	16.4	0.510[3]	3.35	2.96	106	28.5	1.88	ND	ND
		143	549	2.03	55.5	408	528	54.9	50.4	1.63	ND	7.44	ND	1.74	9.75	9.46	220	59.9	3.76	ND	ND
		159	538	2.16	57.3	398	637	55.1	53.2	1.60	ND	8.03	ND	1.84	9.79	9.18	216	59.4	3.53	ND	ND
		179	725	2.80	66.6	429	671	57.4	63.0	1.97	ND	8.05	ND	2.33	12.0	11.6	242	66.4	4.19	ND	ND
		211	774	2.95	54.3	366	719	45.0	61.9	1.29	ND	7.76	ND	2.30	8.69	7.70	175	47.3	2.73	ND	ND
		256	775	3.24	58.3	393	765	47.1	64.3	1.65	ND	7.60	ND	2.35	10.4	9.75	196	52.6	3.48	ND	0.6[3]
DW04A	11/28/17	86	2.07	0.660[3]	ND	ND	16.2	1.01	6.63	ND	1,120	ND	2.34	ND	ND	ND	ND	ND	ND	1,050	ND
		105	2.72	0.600[3]	ND	ND	18.9	1.08	6.92	ND	300	ND	2.57	ND	ND	ND	ND	ND	ND	334	ND
		134	4.79	ND	ND	ND	21.9	1.14	7.48	ND	ND	ND	3.61	ND	ND	ND	ND	ND	ND	51.2	ND
		147	3.89	0.640[3]	ND	ND	19.8	1.43	7.18	ND	ND	ND	3.09	ND	ND	ND	ND	ND	ND	55.3	ND
		162	3.97	0.600[3]	ND	ND	18.8	ND	7.40	ND	ND	ND	3.16	ND	ND	ND	ND	ND	ND	33.6	ND

[1]Supply well samples were submitted for VOCs analysis via EPA method 8260; reported in micrograms per liter (µg/L).
[2]ND = Non Detected.
[3]The reported result is an estimate due to the reported results being below the practical quantitation limit (PQL) and equal to or above the method detection limit (MDL).

Table 11.

Summary of the Gasoline UST Closure Analytical Results

Sample ID	Date	Depth (feet)	Location	PID Reading (ppm)	TPH-GRO[1] (mg/kg)	Benzene[2] (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)
UST #3 F01	01/07/19	9.0	Beneath Plus Gasoline UST (UST #3)	2.2	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
UST #3 F02	01/07/19	9.0	Beneath Plus Gasoline UST (UST #3)	26.8	<2.50	0.00285[J]	0.00704	0.00718	0.01293	<0.0100	0.0129
UST #3 F03	01/07/19	9.0	Beneath Plus Gasoline UST (UST #3)	1,909	2,800	<1.28	36.1	14.7	255.7	<8.34	120
UST #4 F01	01/07/19	9.0	Beneath Premium Gasoline UST (UST #4)	15.7	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
UST #4 F02	01/07/19	9.0	Beneath Premium Gasoline UST (UST #4)	1.0	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
UST #4 F03	01/07/19	9.0	Beneath Premium Gasoline UST (UST #4)	1.6	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
UST #5 F01	01/07/19	9.0	Beneath Regular Gasoline UST (UST #5)	7.0	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
UST #5 F02	01/07/19	9.0	Beneath Regular Gasoline UST (UST #5)	15.3	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
UST #5 F03	01/07/19	9.0	Beneath Regular Gasoline UST (UST #5)	13.2	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	0.00228[J]
UST #6 F01	01/07/19	9.0	Beneath Regular Gasoline UST (UST #6)	0.4	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
UST #6 F02	01/07/19	9.0	Beneath Regular Gasoline UST (UST #6)	0.6	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
UST #6 F03	01/07/19	9.0	Beneath Regular Gasoline UST (UST #6)	0.4	<2.50	<0.00200	<0.00200	<0.00200	<0.00200	<0.0100	<0.00200
GS01	01/07/19	NA	Gasoline UST Basin Overburden	1,882	2,520	<1.28	3.83[J]	19.5	282.3[J]	<8.34	47.0
GS07	01/10/19	11.0	Gasoline Dispenser Island Excavation	2,740	1,520	3.98	57.6	24.2	125.4	0.623	3.25
F01	1/10/19	17.0	Gasoline Dispenser Island Excavation Floor	1,916	835	1.30	27.4	13.6	74.6	<0.250	10.5
F02	1/10/19	17.0	Gasoline Dispenser Island Excavation Floor	2,498	1,070	1.38	33.2	5.89	68.8	<0.251	5.58
F03	1/10/19	17.0	Gasoline Dispenser Island Excavation Floor	2,572	431	0.552	16.9	4.89	23.5	0.509	4.43

Table 11 (Cont'd).

Summary of the Gasoline UST Closure Analytical Results

Sample ID	Date	Depth (feet)	Location	PID Reading (ppm)	TPH-GRO[1] (mg/kg)	Benzene[2] (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)
SW01	1/10/19	12.0	Gasoline Dispenser Island Excavation Sidewall	3,128	936	1.03	41.8	22.1	118.5	0.486	5.28
SW02	1/10/19	10.0	Gasoline Dispenser Island Excavation Sidewall	3,206	974	0.788	38.8	22.2	137.1	0.403	29.3
SW03	1/10/19	10.0	Gasoline Dispenser Island Excavation Sidewall	2,361	1,240	1.12	38.2	19.0	144.2	<0.250	22.7
SW04	1/10/19	11.5	Gasoline Dispenser Island Excavation Sidewall	1,088	131	<0.0500	0.624	0.485	4.88	<0.250	9.35
SW05	1/10/19	10.0	Gasoline Dispenser Island Excavation Sidewall	2,586	567	0.260	6.12	2.28	51.7	<0.250	4.44
SW06	1/10/19	10.0	Gasoline Dispenser Island Excavation Sidewall	3,103	932	1.38	43.5	19.6	107.6	0.619	15.6

[1]Total petroleum hydrocarbons–gasoline range organics analysis via EPA Method 8015; reported in milligrams per kilogram (mg/kg).
[2]BTEX, MTBE, and naphthalene analysis via EPA Method 8260; reported in mg/kg.
[3]NA= Not Applicable.
[J]The concentration is an estimate. The reported result is below the practical quantitation limit and equal to or above the method detection limit.

Table 12.

Summary of the Kerosene & Diesel Fuel UST Closure Analytical Results

Sample ID	Date	Depth (feet)	Location	PID Reading (ppm)	TPH-DRO[1] (mg/kg)	Benzene[2] (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)
Diesel Dispenser	01/07/19	2.0	Beneath the Diesel Fuel Dispenser	234.4	888	<0.00128	0.0429	0.0275	0.01186[J]	<0.00834	0.350
Kerosene Dispenser	01/07/19	2.0	Beneath the Kerosene Dispenser	861.7	1,040	<0.0125	<0.0125	0.0402	0.0200[J]	<0.0625	0.0375
GS02	01/07/19	NA[3]	Kerosene/Diesel Fuel UST Overburden	118.7	5,260	<0.00128	0.00439	0.0407	0.0832	<0.00834	0.152
GS03	01/09/19	3.5	Kerosene/Diesel Fuel Dispenser Island Excavation	230.9	794	<0.0125	<0.0125	0.0235[J]	0.0315[J]	<0.0625	0.239
GS04	01/09/19	3.5	Kerosene/Diesel Fuel Dispenser Island Excavation	99.9	2,460	<0.00128	<0.00174	0.0129	0.0603	<0.00834	0.0592
GS05	01/09/19	8.0	Kerosene/Diesel Fuel Dispenser Island Excavation	22.5	329	<0.00128	<0.00174	<0.00175	<0.00160	<0.00834	<0.00200
GS06	01/09/19	8.5	Kerosene/Diesel Fuel Dispenser Island Excavation	108.3	16,000	0.00380[J]	<0.00174	<0.00175	<0.00160	0.0115[J]	<0.00200
UST #1 F01	01/07/19	7.0	Beneath Kerosene UST (UST #1)	1.0	215	<0.00200	0.000215[J]	<0.00200	<0.00200	<0.0100	0.0575
UST #1 F02	01/07/19	7.0	Beneath Kerosene UST (UST #1)	0.9	40.4	<0.00127	0.00259[J]	0.00246[J]	0.00811[J]	<0.00825	<0.00198
UST #2 F01	01/07/19	7.0	Beneath Diesel Fuel UST (UST #2)	0.5	<5.82	<0.00128	<0.00174	<0.00175	0.00442[J]	<0.00834	<0.00200
UST #2 F02	01/07/19	7.0	Beneath Diesel Fuel UST (UST #2)	0.9	<5.83	<0.00128	<0.00174	<0.00175	<0.00160	<0.00834	<0.00200

[1]Total petroleum hydrocarbons–diesel range organics analysis via EPA Method 8015; reported in milligrams per kilogram (mg/kg).
[2]BTEX, MTBE, and naphthalene analysis via EPA Method 8260; reported in mg/kg.
[3]NA= Not Applicable.
[J]The concentration is an estimate. The reported result is below the practical quantitation limit and equal to or above the method detection limit.

Table 13.

Description of Observed Supply Well Analytes

Analyte	MCL[1] (µg/L)	VA DEQ RML[2] (µg/L)	Analyte Uses
Benzene	5	0.39	Multiple industrial uses. Benzene is a component of motor fuels.
Toluene	1,000	86	Multiple industrial uses. Toluene is added to gasoline to improve octane ratings and is utilized in the production of benzene.
Ethylbenzene	700	1.3	Multiple industrial uses. Ethylbenzene is a component of motor fuels.
Xylenes	10,000	19	Multiple industrial uses. Xylenes are utilized in the production of ethylbenzene and are blended into gasoline.
MTBE	NA[3]	12	MTBE is primarily utilized as a fuel additive in gasoline to improve octane ratings.
Naphthalene	NA	0.14	Multiple industrial uses. Naphthalene is a component of motor fuels.
Ethylene Dibromide (EDB)	0.05	0.0065	EDB was formerly utilized as an additive to leaded gasoline
1,2-Dichloroethane	5	0.15	Multiple industrial uses. 1,2-Dichloroethane was formerly added to leaded gasoline as a lead scavenger.
Isopropyl Ether (DIPE)	NA	150	DIPE is a fuel oxygenate utilized to improve octane ratings.
Tert-Amyl Alcohol (TAA)	NA	10	TAA is a fuel oxygenate utilized to improve octane ratings.
Tert-Butanol (TBA)	NA	10	TBA is a fuel oxygenate utilized to improve octane ratings.
Tert-Amyl Methyl Ether (TAME)	NA	12	TAME is a fuel oxygenate utilized to improve octane ratings.
Lead	15[4]	NA	Lead is a naturally occurring element formerly and/or currently utilized in leaded gasoline, paint, ceramics, pipes, fixtures, solder, etc. Lead is generally observed in tap water due to the corrosion of plumbing fixtures, piping, and/or solder.
Bromodichloromethane	80	NA	Bromodichloromethane is not typically associated with petroleum products and its presence is likely a byproduct of the reaction of chlorine with naturally occurring organic compounds.
sec-Butylbenzene	NA	NA	Volatile organic compound with multiple industrial uses.
Chlorobenzene	100	NA	Multiple industrial uses. Chlorobenzene is primarily utilized as a solvent for pesticides and degreasing automobile parts.
Chloroform	80	NA	Chloroform is not typically associated with petroleum products and its presence is likely a byproduct of the reaction of chlorine with naturally occurring organic compounds.

Table 13 (Cont'd).

Description of Observed Supply Well Analytes

Analyte	MCL[1] (µg/L)	VA DEQ RML[2] (µg/L)	Analyte Uses
2-Chlorotoluene	NA	NA	2-Chlorotoluene is primarily utilized as a solvent in multiple industrial products.
4-Chlorotoluene	NA	NA	4-Chlorotoluene is primarily utilized as a solvent in multiple industrial products.
Dibromochloromethane	80	NA	Dibromochloromethane is not typically associated with petroleum products and its presence is likely a byproduct of the reaction of chlorine with naturally occurring organic compounds.
1,2-Dichloropropane	5	NA	Multiple industrial uses. Primarily utilized as an industrial solvent.
Isopropylbenzene	NA	NA	Primarily utilized as a paint thinner. Isopropylbenzene is a component of high octane fuels.
4-Methyl-2-pentanone	NA	NA	Primarily utilized as a solvent in industrial products.
n-Propylbenzene	NA	NA	Multiple industrial uses. n-Propylbenzene is a component of petroleum and coal.
1,2,4-Trimethylbenzene	NA	NA	Multiple industrial uses. 1,2,4-Trimethylbenzene is a component of petroleum and coal.
1,3,5-Trimethylbenzene	NA	NA	Multiple industrial uses. 1,3,5-Trimethylbenzene is a volatile chemical in gasoline and utilized as a solvent.
4-Isopropyltoluene	NA	NA	4-Isopropyltoluene is a naturally occurring aromatic organic compound classified as a hydrocarbon.
2-Butanone (MEK)	NA	490	2-Butanone (MEK) is primarily utilized as a solvent and is also a component of PVC glue.
Methylene Chloride	5	NA	Multiple industrial uses. Methylene chloride is primarily utilized as a solvent.
Tetrachlroethene	5	NA	Tetrachloroethene (also known as tetrachloroethylene or perchloroethylene) is primarily utilized as a solvent for dry cleaning, metal degreasing, and textile processing.
Dimethyl Phthalate	NA	NA	Dimethyl phthalate is primarily utilized in the production of plastics, insect repellants, and pesticides.
Phenol	NA	NA	Phenol is primarily utilized in the production of phenolic resins (plastics) and is generally not associated with petroleum releases.

[1]MCL (EPA Maximum Contaminant Level) = Enforceable federal standard denoting the highest level of a contaminant allowed in drinking water.
[2]Virginia Department of Environmental Quality Risk Management Level.
[3]NA = Not Applicable.
[4]Lead maintains an EPA action level of 15 µg/L where public water systems must take actions if more than 10% of tap water samples exceed action level.

Table 14.

Summary of the Receptor Survey Results

Property ID	Name/Address[1]	Receptor ID	Location From Gasoline UST System	Potential Receptor Information, Current Use, Installation Date, & Construction Details
P01	Chamblissburg Supply (dba Elei's) 10625 Stewartsville Road Stewartsville – Chamblissburg Volunteer Fire Department Station 2	DW01A	~135 feet East	The property maintains the Chamblissburg Supply (dba Elei's) and the Stewartsville – Chamblissburg Volunteer Fire Department. DW01A is a drilled supply well installed to approximately 292 feet bgs with 6-inch steel casing installed to approximately 87.75 feet bgs. DW01A has been impacted with petroleum and is no longer in use.
		DW01B	~900 feet North-Northeast	During September 2019, deep water monitoring well MW13 was converted to supply well DW01B. DW01B provides potable water to the Chamblissburg Supply facility. DW01B is a drilled supply installed to approximately 300 feet bgs and constructed with approximately 102 feet of 6-inch steel casing. Analytical results of water samples collected from MW13/DW01B have yielded Non Detected for petroleum contamination.
P02	Farkas Residence 10590 Stewartsville Road	DW02A	~235 feet Southeast	DW02A is a drilled well installed to approximately 261 feet bgs with 6-inch PVC casing installed to approximately 88.50 feet bgs. DW02A has been impacted with petroleum and is no longer in use.
		DW02B	Unknown	Supply well DW02B is a reportedly out of use bored/hand dug supply well. The exact location and any construction details are unknown and the well may have been closed/abandoned.
		DW02C	~1,085 feet South-Southwest	During September 2019, deep water monitoring well MW14 was converted to supply well DW02C. DW02C provides potable water to the onsite residence. DW02C is a drilled supply installed to approximately 200 feet bgs and constructed with approximately 102 feet of 6-inch steel casing. Analytical results of water samples collected from MW14/DW02C have yielded Non Detected for petroleum contamination.
		Pond-04	~1,025 feet South-Southwest	A spring-fed pond appears to be located on both property P02 and property P04. A surface water sample collected from Pond-04 yielded Non Detected for petroleum contamination.
P03	Former Dudley Property 10605 Stewartsville Road	DW03A	~170 feet East-Southeast	DW03A is a drilled supply well installed to approximately 197.5 feet bgs with 6-inch steel casing installed to approximately 99 feet bgs. DW03A has been impacted with petroleum and is no longer in use.
		DW03B	~140 feet East-Southeast	DW03B is an out of use hand dug well located beneath onsite carport. Groundwater sampling has yielded Non Detected for petroleum contamination.
		DW03C	~700 feet North-Northeast	During September 2019, deep water monitoring well MW12 was converted to supply well DW03C. DW03C provides potable water to the onsite residence. DW03C is a drilled supply installed to approximately 260 feet bgs and constructed with approximately 103 feet of 6-inch steel casing. Analytical results of water samples collected from MW12/DW03C have yielded Non Detected for petroleum contamination.

Table 14 (Cont'd).

Summary of the Receptor Survey Results

Property ID	Name/Address[1]	Receptor ID	Location From Gasoline UST System	Potential Receptor Information, Current Use, Installation Date, & Construction Details
P04	Houck Residence 10555 Stewartsville Road	DW04A	~525 feet East-Southeast	Supply well DW04A provides potable water to the onsite residence. DW04A is a drilled supply well installed to approximately 165 feet bgs with 6-inch steel casing installed to approximately 87 feet bgs. The well pump is hung on 1-inch HDPE piping approximately 150 feet bgs. DW04A has been impacted with petroleum and a carbon filtration system has reportedly been installed as part of the VA DEQ AWS program. No additional construction details are known.
		DW04B	~480 feet East-Southeast	DW04B is an out of use drilled supply well installed to approximately 82 feet bgs with 5-inch steel casing installed to approximately 69 feet bgs. The well pump is hung on 1-inch HDPE piping approximately 75 feed bgs. Groundwater sampling yielded chemicals typically associated with petroleum contamination.
P05	Thomas Residence 10465 Stewartsville Road	DW05A	~840 feet Southeast	Supply well DW05A provides potable water to the onsite residence. DW05A is a drilled supply well installed in 1971 by Richard Simmons Well Drilling. DW05A is approximately 180 feet deep and is installed with steel casing. DW05A has been impacted with petroleum and a carbon filtration system has reportedly been installed as part of the VA DEQ AWS program. No additional construction details are known.
P06	Franklin Residence 10431 Stewartsville Road	DW06B	~1,000 feet Southeast	Supply well DW06B is a bored well, which is connected only to the outside spigots of the onsite residence. No additional construction details are known. Analytical results of a water sample collected from DW06B yielded Non Detected for petroleum contamination.
		DW06C	~1,020 feet Southeast	Supply well DW06C currently provides potable water to the onsite residence. No additional construction details are known. Analytical results of water samples collected from DW06C have yielded Non Detected for petroleum contamination.
P07	Scott Residence 10433 Stewartsville Road	DW07A	~990 feet East-Southeast	Supply well DW07A is a drilled well, which provides potable water to the onsite residence and the offsite residence (P06). DW07A has been impacted with petroleum and carbon filtration systems have been installed at P06 and P07 as part of the VA DEQ AWS programs. No additional construction details are known.
P08	Kidd Residence 10375 Stewartsville Road	DW08A	~1,330 feet Southeast	Supply well DW08A provides potable water to the onsite residence. DW08A is a drilled supply well reportedly installed to approximately 300 feet. No additional construction details are known. Analytical results of water samples collected from DW08A yielded Non Detected for petroleum contamination.
		DW08B	~1,330 feet Southeast	Supply well DW08B also provides potable water to the onsite residence. DW08B is a bored supply well reportedly installed to approximately 60 feet. No additional construction details are known. Analytical results of water samples collected from DW08B yielded Non Detected for petroleum contamination.

Table 14 (Cont'd).

Summary of the Receptor Survey Results

Property ID	Name/Address[1]	Receptor ID	Location From Gasoline UST System	Potential Receptor Information, Current Use, Installation Date, & Construction Details
P09	Brillhart Property 10570 Stewartsville Road	DW09A	~460 feet Southeast	Supply well DW09A provides potable water to the onsite residence. DW09A is a drilled supply well reportedly installed in 2001 to approximately 260 feet. No additional construction details are known. Analytical results of water samples collected from DW09A yielded Non Detected for petroleum contamination.
		DW09B	~460 feet Southeast	Supply well DW09B is reportedly an out of use hand dug well. No additional construction details are known. Analytical results of a water sample collected from DW09B yielded Non Detected for petroleum contamination.
P10	Wilson Residence 1020 Cannon Lane	DW10A	~565 feet Southeast	Supply well DW10A provides potable water to the onsite residence and three rental properties located on the property. DW10A is a drilled supply well reportedly installed to approximately 185 feet bgs. No additional construction details are known. Analytical results of a water sample collected from DW10A yielded Non Detected for petroleum contamination.
	Wilson Property 1060 Cannon Lane			
	Wilson Property 1090 Cannon Lane			
	Wilson Property 1130 Cannon Lane			
P11	Bolden Residence 10520 Stewartsville Road	DW11A	~690 feet Southeast	Supply well DW11A provides potable water to the onsite residence. DW11A is a reportedly drilled supply. No additional construction details are known. Analytical results of water samples collected from DW11A yielded Non Detected for petroleum contamination.
P12	Simmons Property 10480 Stewartsville Road	DW12A	~835 feet Southeast	Supply well DW12A provides potable water to the two onsite residences. The top of casing for DW12A is buried and as a result, the exact location is unknown. No additional construction details are known. Analytical results of water samples collected from DW12A yielded Non Detected for petroleum contamination.
	Simmons Property 1055 Castle Lane			
P13	Cottle Residence 1075 Castle Lane	DW13A	~1,025 feet Southeast	Supply well DW13A provides potable water to the onsite residence. The top of casing for DW13A is buried and as a result, the exact location is unknown. No additional construction details are known. Analytical results of a water sample collected from DW13A yielded Non Detected for petroleum contamination.
		DW13B	~1,025 feet Southeast	DW13B is an out of use bored well installed to approximately 39 feet bgs. Analytical results of a water sample collected from DW13B yielded Non Detected for petroleum contamination.
P14	Ellis Residence 1030 Castle Lane	DW14A	~905 feet Southeast	Supply well DW14A provides potable water to the onsite residence. DW14A is reportedly a drilled well installed to approximately 100 feet. No additional construction details are known. Analytical results of a water sample collected from DW14A yielded Non Detected for petroleum contamination.

Table 14 (Cont'd).

Summary of the Receptor Survey Results

Property ID	Name/Address[1]	Receptor ID	Location From Gasoline UST System	Potential Receptor Information, Current Use, Installation Date, & Construction Details
P15	LeDoux Residence 1080 Castle Lane	DW15A	~1,055 feet Southeast	Supply well DW15A provides potable water to the onsite residence. Construction details and the exact location of supply well DW15A are unknown. Analytical results of a water sample collected from DW15A yielded Non Detected for petroleum contamination.
P16	Palmer Residence 10440 Stewartsville Road	DW16A	~1,005 feet Southeast	Supply well DW16A provides potable water to the onsite residence. DW16A is reportedly a drilled well, however, no additional construction details are known. Analytical results of a water sample collected from DW16A yielded Non Detected for petroleum contamination.
P17	Hicks Residence 10420 Stewartsville Road	DW17A	~1,180 feet Southeast	Supply well DW17A provides potable water to the onsite residence. DW17A is a drilled well, however, no additional construction details are known. Analytical results of a water sample collected from DW17A yielded Non Detected for petroleum contamination.
		DW17B	~1,232 feet Southeast	DW17B is an out of use bored well installed to approximately 31 feet bgs. Analytical results of a water sample collected from DW17B yielded Non Detected for petroleum contamination.
P18	Lozano Residence 10340 Stewartsville Road	DW18A	~1,490 feet Southeast	Supply well DW18A provides potable water to the onsite residence. DW18A is a drilled supply well with PVC casing. No additional construction details are known. Analytical results of a water sample collected from DW18A yielded Non Detected for petroleum contamination.
P19	Beaverdam Baptist Church 10665 Stewartsville Road	DW19A	~315 feet Northwest	Supply well DW19A provides potable water to the Beaverdam Baptist Church. DW19A is a drilled well installed in approximately 2010 to greater than 200 feet. No additional construction details are known. Analytical results of water samples collected from DW19A yielded Non Detected for petroleum contamination.
	Beaverdam Baptist Church - Parsonage 10729 Stewartsville Road	DW19B	Unknown	Supply well DW19B provides potable water to the parsonage. The parsonage is vacant and the water has reportedly been turned off. No construction details are known.
P20	Dudley Property Undeveloped – No Address	Pond-01	~930 feet Northeast	The property is an undeveloped property owned by the Estate of Lacy Dudley. The property reportedly does not maintain any supply wells; however an unnamed intermittent tributary draining to a pond is located on the property. The pond appears to drain to the East Fork of Beaverdam Creek. Analytical results of water samples collected from the pond yielded Non Detected for petroleum contamination; however, analytical results of a water samples collected from the intermittent tributary yielded limited petroleum contamination.
		Intermittent Tributary	~700 feet Northeast	
P21	Thomas Residence 10765 Stewartsville Road	DW21A	~620 feet Northwest	Supply well DW21A provides potable water to the onsite residence. DW21A is a drilled well installed in 1984 to approximately 230 feet. No additional construction details are known.

Table 14 (Cont'd).

Summary of the Receptor Survey Results

Property ID	Name/Address[1]	Receptor ID	Location From Gasoline UST System	Potential Receptor Information, Current Use, Installation Date, & Construction Details
P22	Unknown Residence 10739 Stewartsville Road	Unknown	Unknown	Property P22 maintains one residential property. Information regarding the onsite water supply is unknown. A letter was left at the residence during the receptor survey. No obvious supply well was observed.
P23	Cunningham Residence 10769 Stewartsville Road	DW23A	~800 feet Northwest	Supply well DW23A provides potable water to the onsite residence. DW23A is a drilled well reportedly installed between 1984 and 1993 with PVC casing. No additional construction details are known.
P24	Agricultural Property Undeveloped – No Address	NA[2]	NA	The property is an agricultural property reportedly owned by Eugene Blount. The property reportedly does not maintain any supply wells.
P25	Rental Property 10825 Stewartsville Road	DW25A	Unknown	Supply well DW25A provides potable water to the onsite residence addressed as 10825 Stewartsville Road. No information regarding the supply well construction or location is known.
	Rental Property 10827 Stewartsville Road	DW25B	Unknown	Supply well DW25B provides potable water to the onsite residence addressed as 10827 Stewartsville Road. No information regarding the supply well construction or location is known.
P26	St Clair Residence 10840 Stewartsville Road	DW26A	~1,120 feet West	Supply well DW26A provides potable water to the onsite residence. DW26A is a drilled supply well installed in May 2011 to approximately 260 feet. Ty Davidson Well Drilling, Inc. plate on the well cover. Installed this well due to DW26B staining clothes after a rainfall event.
		DW26B	~1,130 feet West	Supply well DW26B is an out of use drilled well installed to approximately 70 feet.
P27	Townsend Residence 10806 Stewartsville Road	DW27A	~970 feet West	Supply well DW27A provides potable water to the onsite residence. DW27A is a drilled supply well installed in 2005 to approximately 205 feet.
P28	Blount Residence 10780 Stewartsville Road	DW28A	~720 feet Northwest	Supply well DW28A provides potable water to the onsite residence and the offsite residence addressed as 10770 Stewartsville Road (P29). DW28A is reportedly a drilled supply well installed in 2012. No additional construction details are known.
P29	Blount Property 10770 Stewartsville Road	NA	NA	The residence located at P29 obtains potable water from supply well DW28A located at 10780 Stewartsville Road.
P30	Unknown Residence 10690 Stewartsville Road	Unknown	Unknown	Property P30 maintains one residential property. Information regarding the onsite water supply is unknown. A letter was left at the residence during the receptor survey.
P31	Whorley Residence 10688 Stewartsville Road	DW31A	~350 feet West	Supply well DW31A provides potable water to the onsite residence. DW31A is a drilled supply well with PVC casing. No additional construction details are known. Analytical results of water samples collected from DW31A yielded Non Detected for petroleum contamination.

Table 14 (Cont'd).

Summary of the Receptor Survey Results

Property ID	Name/Address[1]	Receptor ID	Location From Gasoline UST System	Potential Receptor Information, Current Use, Installation Date, & Construction Details
P32	Booze Residence 10684 Stewartsville Road	DW32A	~280 feet West	Supply well DW32A provides potable water to the onsite residence. DW32A is reportedly a drilled supply installed in the 1970s. No additional construction details are known. Analytical results of water samples collected from DW32A yielded Non Detected for petroleum contamination.
P33	Bartkiewicz Residence 10640 Stewartsville Road	DW33A	~175 feet Southwest	Supply well DW33A provides potable water to the onsite residence. DW33A is a drilled supply installed in with PVC casing. No additional construction details are known. Analytical results of water samples collected from DW33A yielded Non Detected for petroleum contamination.
		DW33B	~175 feet Southwest	Supply well DW33B is an out of use drilled well located on the P33 property. Due to the pump not functioning a groundwater sample has not been collected from DW33B.
P34	Undeveloped Property No Known Address	NA	NA	The property is an undeveloped property reportedly owned by Angela Cardwell. The property reportedly does not maintain any supply wells.
P35	Wilkes Residence 1222 Catfish Court	DW35A	~1,300 feet Southwest	Supply well DW35A provides potable water to the onsite residence. DW35A is a drilled supply well installed in 1975 to approximately 155 feet.
P36	Unknown Residence 1224 Catfish Court	Unknown	Unknown	Property P36 maintains one residential property. The residence appeared vacant and the property is for sale. Information regarding the onsite water supply is unknown. No obvious supply well was observed.
P37	Petrie Residence 1221 Catfish Court	DW37A	~1,400 feet Southwest	Supply well DW37A provides potable water to the onsite residence. DW37A is a drilled supply well installed in 1975 to approximately 125 feet.
P38	Undeveloped Property No Known Address	Pond-02	~1,925 feet South-Southwest	The property is an undeveloped property reportedly owned by Steven Brillhart. The property reportedly does not maintain any supply wells. One pond (Pond-02) was observed on the property.
P39	Undeveloped Property No Known Address	DW39A	~1,645 feet South-Southeast	The property appears to be an undeveloped property. However, a drilled supply well, DW39A, is a drilled well installed on the property. No additional construction details are known.
		Pond-03	~1,565 feet South-Southeast	Pond-03 appears to be a drainage pond located on the property. No additional details are known.
P40	Simmons Residence 10247 Stewartsville Road Simmons Property 10249 Stewartsville Road	DW40A	~1,770 feet East-Southeast	Supply well DW40A provides potable water to the two onsite residences. DW40A is reportedly a drilled supply installed in with PVC casing. No additional construction details are known. Analytical results of a water sample collected from DW40A yielded Non Detected for petroleum contamination.

Table 14 (Cont'd).

Summary of the Receptor Survey Results

Property ID	Name/Address[1]	Receptor ID	Location From Gasoline UST System	Potential Receptor Information, Current Use, Installation Date, & Construction Details
P41	Simmons Property 10245 Stewartsville Road Simmons Property 10265 Stewartsville Road	DW41A	~1,865 feet Southeast	Supply well DW41A provides potable water to the two onsite residences. DW41A is reportedly a drilled supply. No additional construction details are known. Analytical results of a water sample collected from DW41A yielded Non Detected for petroleum contamination.

[1]Addresses are located in Vinton, VA 24179.
[2]NA = Not applicable.

Table 15. In Situ Air Sparging with Soil Vapor Extraction[1]	
Advantages	• reduction in VOC vapors below water bearing horizon • enhance vapor extraction and downgradient pumping effectiveness
Limitations	• effectiveness is limited in low permeability or heterogeneous media • removal of primarily volatile constituents • ability to facilitate vapor- and adsorbed-phase migration • maintenance of air distribution in groundwater; availability of performance data is limited
Cleanup Levels & Timing[2]	• generally, achieves maximum contaminant levels for VOCs • notable reduction in contaminant mass in ~6 months to 1 year [assuming no delays in corrective action and a relatively homogenous, permeable subsurface] • notable reduction in contaminant mass in ~6 months to 2 years [assuming minimal delays in corrective actions and a moderately heterogeneous, permeable subsurface]
Costs[3]	• ~$100,000 to $300,000 [assuming no delays in corrective action and a relatively homogenous, permeable subsurface] • ~$200,000 to $330,000 [assuming minimal delays in corrective action and a moderately heterogeneous, permeable subsurface]

[1]Source: U.S. Environmental Protection Agency, An Overview of Underground Storage Tank Options, Solid Waste and Emergency Response 5403W; EPA 510 F-93-029, October 1993.
[2]Site specific cleanup standards are determined by the state regulatory agency.
[3]Costs include necessary equipment and system operation and maintenance for the timeframe specified; adjusted to reflect 2015 pricing.

Table 16. Groundwater Pump & Treat Systems[1]	
Advantages	• reduction in contaminant concentrations and maintenance of areal extent of plume(s)
Limitations	• effectiveness is limited in aquifers with low permeability potential • may require extensive duration periods to achieve maximum efficiency • groundwater with a high iron content may affect treatment quality • monitoring of water table fluctuations throughout system operation
Cleanup Levels & Timing[2]	• ~1 to 3 years [assuming no delays in corrective action and a relatively homogenous, permeable subsurface, and minimal source contaminants] • ~2 to 5 years [assuming minimal delays in corrective actions and a moderately heterogeneous, permeable subsurface, and generous source contaminants]
Costs[3]	• ~$250,000 to $330,000 [assuming no delays in corrective action and a relatively homogenous, permeable subsurface, and minimal source contaminants] • ~$410,000 to $500,000 [assuming minimal delays in corrective action and a moderately heterogeneous, permeable subsurface, and generous source contaminants]

[1]Source: U.S. Environmental Protection Agency, An Overview of Underground Storage Tank Options, Solid Waste and Emergency Response 5403W; EPA 510-F-93-029, October 1993.
[2]Site specific cleanup standards are determined by the state regulatory agency.
[3]Costs include necessary equipment and system operation and maintenance for the timeframe specified; adjusted to reflect 2015 pricing.

Table 17. In Situ Bioremediation[1]	
Advantages	• in-place degradation of contaminants • achieves lower concentrations than pump & treat
Limitations	• effectiveness is limited in low permeability or heterogeneous media • ability to transport nutrients and oxygen may be limited by soil and groundwater mineral content or pH • targets biodegradable constituents only
Cleanup Levels & Timing[2]	• generally, achieves maximum contaminant levels • achieves > or = 90% reduction of biodegradable constituents • ~90% reduction in 6 months to 1 year [assuming no delays in corrective action and a relatively homogenous, permeable subsurface] • ~90% reduction in 6 months to 4 years [assuming minimal delays in corrective actions and a moderately heterogeneous, permeable subsurface] • additional system operation time required for hydrocarbons maintaining a composition with a greater density
Costs[3]	• ~$250,000 to $410,000 [assuming no delays in corrective action and a relatively homogenous, permeable subsurface] • ~$330,000 to $820,000 [assuming minimal delays in corrective action and a moderately heterogeneous, permeable subsurface]

[1]Source: U.S. Environmental Protection Agency, An Overview of Underground Storage Tank Options, Solid Waste and Emergency Response 5403W; EPA 510-F-93-029, October 1993.
[2]Site specific Acleanup standards@ are determined by the state regulatory agency.
[3]Costs include necessary equipment and system operation and maintenance for the timeframe specified; adjusted to reflect 2015 pricing.

Table 18. Dual-Phase Extraction[1]	
Advantages	• reduction in contaminant concentrations and maintenance of areal extent of plume(s) • ability to remove VOCs from soils • ability to dewater an area facilitating additional recovery of VOCs from soils • effective in low permeability or heterogeneous media
Limitations	• potential for treatment of vapor recovery stream • groundwater with a high iron content may affect treatment quality • monitoring of water table fluctuations throughout system operation
Cleanup Levels & Timing[2]	• notable reduction in contaminant mass in ~6 months to 1 year [assuming no delays in corrective action and a relatively homogenous, permeable subsurface] • notable reduction in contaminant mass in ~6 months to 2 years [assuming minimal delays in corrective actions and a moderately heterogeneous, permeable subsurface]
Costs[3]	• ~$130,000 to $300,000 [assuming no delays in corrective action and a relatively homogenous, permeable subsurface] • ~$200,000 to $320,000 [assuming minimal delays in corrective action and a moderately heterogeneous, permeable subsurface]

[1]Source: U.S. Environmental Protection Agency, An Overview of Underground Storage Tank Options, Solid Waste and Emergency Response 5403W; EPA 510 F-93-029, October 1993.
[2]Site specific cleanup standards are determined by the state regulatory agency.
[3]Costs include necessary equipment and system operation and maintenance for the timeframe specified; adjusted to reflect 2015 pricing.

APPENDIX B

Maps

Aerial Map
Topographic Map
Pre-Excavation Site Map (01/07/2019)
Post-Excavation Site Map (01/10/2019
Potential Receptors Location Map
Soil Boring Location Map - Site
Soil Boring Location Map - Aerial
Monitoring Well Location Map - Site
Monitoring Well Location Map – Aerial
Deep Groundwater Monitoring Well Location Map
Surface Water Sample Location Map
SCR Potentiometric Surface Maps
SCRA Potentiometric Surface Maps
PSCM SP1 Potentiometric Surface Maps
SCR Isoconcentration Maps
SCRA Isoconcentration Maps
PSCM SP1 Isoconcentration Maps
SCR Geophysical Borehole Logging Summary
PSCM SP1 UST Closure Soil Sample Location Map

Aerial Map

Chamblissburg Supply
10625 Stewartsville Road
Vinton, VA 24179

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Fax: 540-483-3381
www.greene-environmental.com

BEDFORD COUNTY, VIRGINIA

Source: Google Earth

Scale: Not to Scale

Project: PSCM SP1

Client: Estate of Lacy Dudley

Greene Job #: CSVI1004

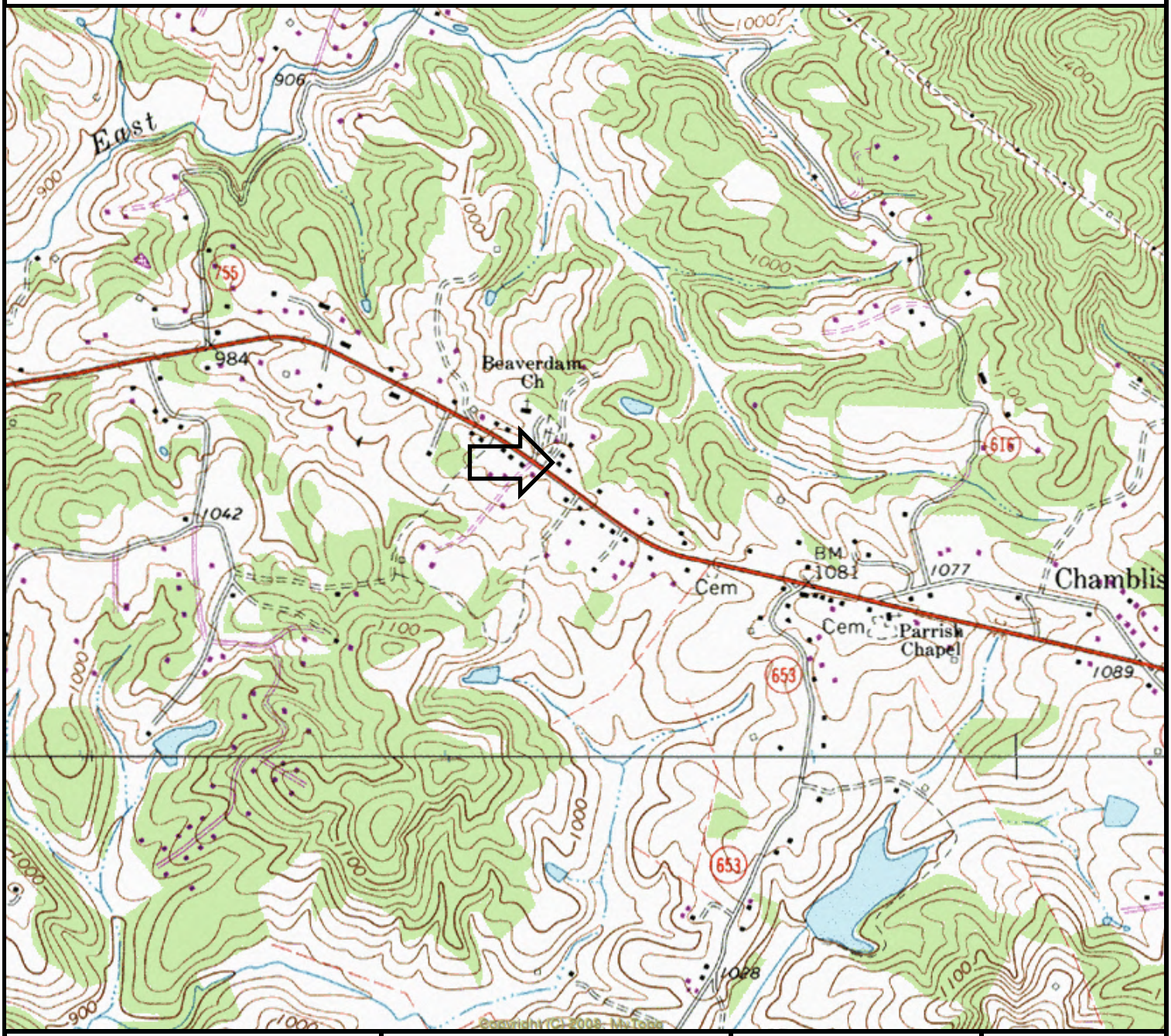
Date: December 11, 2019

N
W E
S

Latitude:
037.257362°N
Longitude:
079.722368° W

Topographic Map

Chamblissburg Supply
10625 Stewartsville Road
Vinton, VA 24179



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www.greene-environmental.com

IRVING, VIRGINIA

Source: U.S.G.S. Topographic Map of the Irving Quadrangle, Virginia, 7.5 Minute Series (1967, revised 1985)
Scale: Not to Scale Contour Interval: 20 Feet
Vertical Datum: National Geodetic Vertical Datum 1929
Horizontal Datum: North American Datum 1927

Project: PSCM SP1

Client: Estate of Lacy Dudley

Greene Job #: CSVI1004

Date: December 11, 2018

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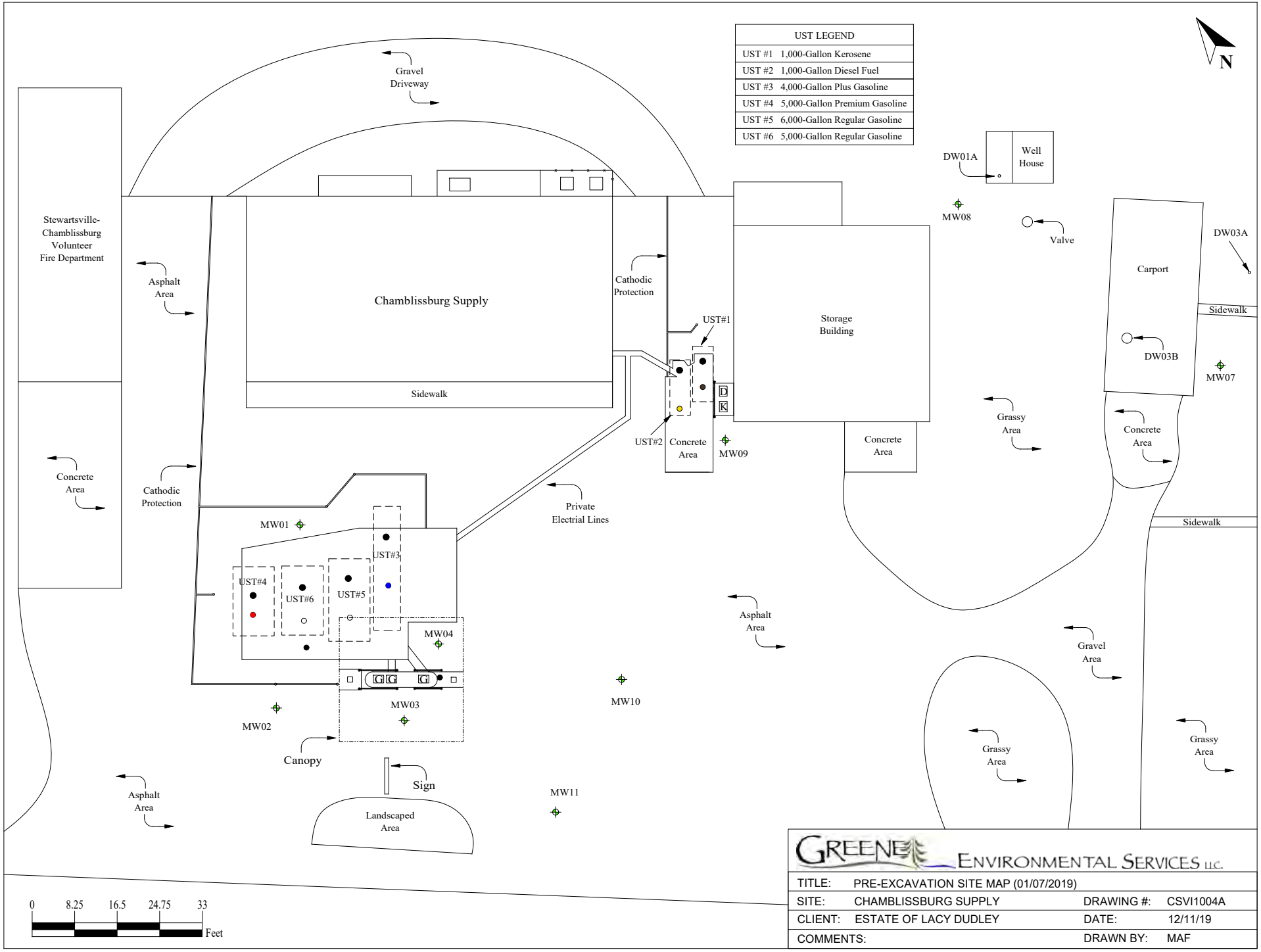
Latitude:
037.257362°N
Longitude:
079.722368° W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UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Sidewalk
Cathodic Protection
UST#1
Storage Building
UST#2
Concrete Area
MW09
Concrete Area
DW01A
Well House
MW08
Valve
DW03A
Carport
Sidewalk
DW03B
MW07
Grassy Area
Concrete Area
Concrete Area
Cathodic Protection
Private Electrial Lines
MW01
UST#3
UST#4
UST#6
UST#5
MW04
MW03
MW02
Canopy
Sign
Landscaped Area
MW10
MW11
Asphalt Area
Asphalt Area
Gravel Area
Grassy Area
Grassy Area
Sidewalk
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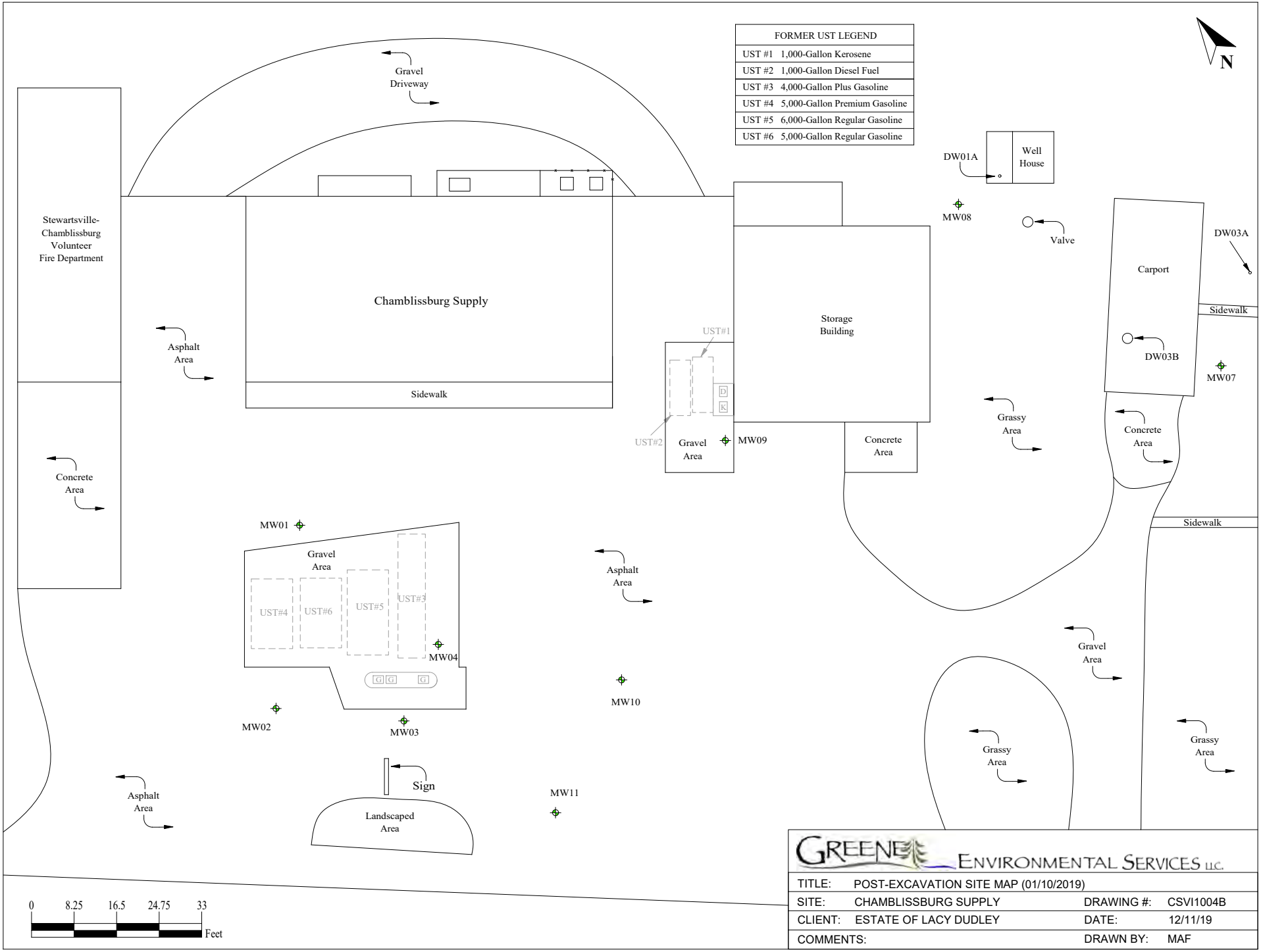
16.5
24.75
33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: PRE-EXCAVATION SITE MAP (01/07/2019)
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1004A
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/11/19
COMMENTS:
DRAWN BY: MAF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UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
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UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Chamblissburg Supply
Sidewalk
Asphalt Area
Concrete Area
Storage Building
UST#1
UST#2
Gravel Area
MW09
Concrete Area
DW01A
Well House
MW08
Valve
DW03A
Carport
Sidewalk
DW03B
MW07
Grassy Area
Concrete Area
Sidewalk
MW01
Gravel Area
UST#4
UST#6
UST#5
UST#3
MW04
MW02
MW03
Asphalt Area
MW10
Gravel Area
Grassy Area
Grassy Area
Asphalt Area
Sign
Landscaped Area
MW11
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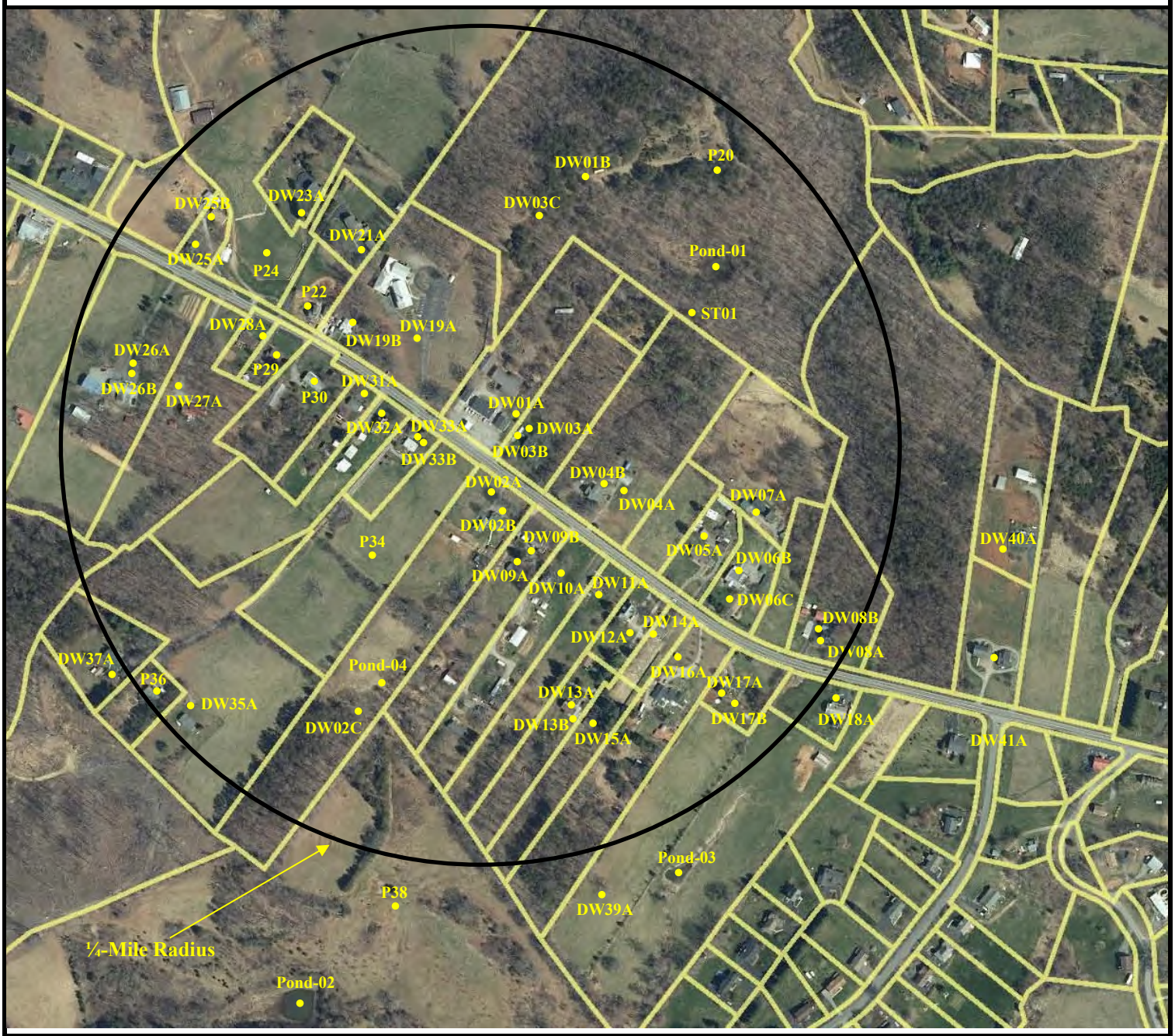
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: POST-EXCAVATION SITE MAP (01/10/2019)
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1004B
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/11/19
COMMENTS:
DRAWN BY: MAF

Potential Receptors Location Map

Chamblissburg Supply
10625 Stewartsville Road
Vinton, VA 24179



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BEDFORD COUNTY, VIRGINIA

Source: Google Earth

Scale: Not to Scale

Project: PSCM SP1

Client: Estate of Lacy Dudley

Greene Job #: CSVI1004

Date: December 11, 2019

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W E
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Latitude:
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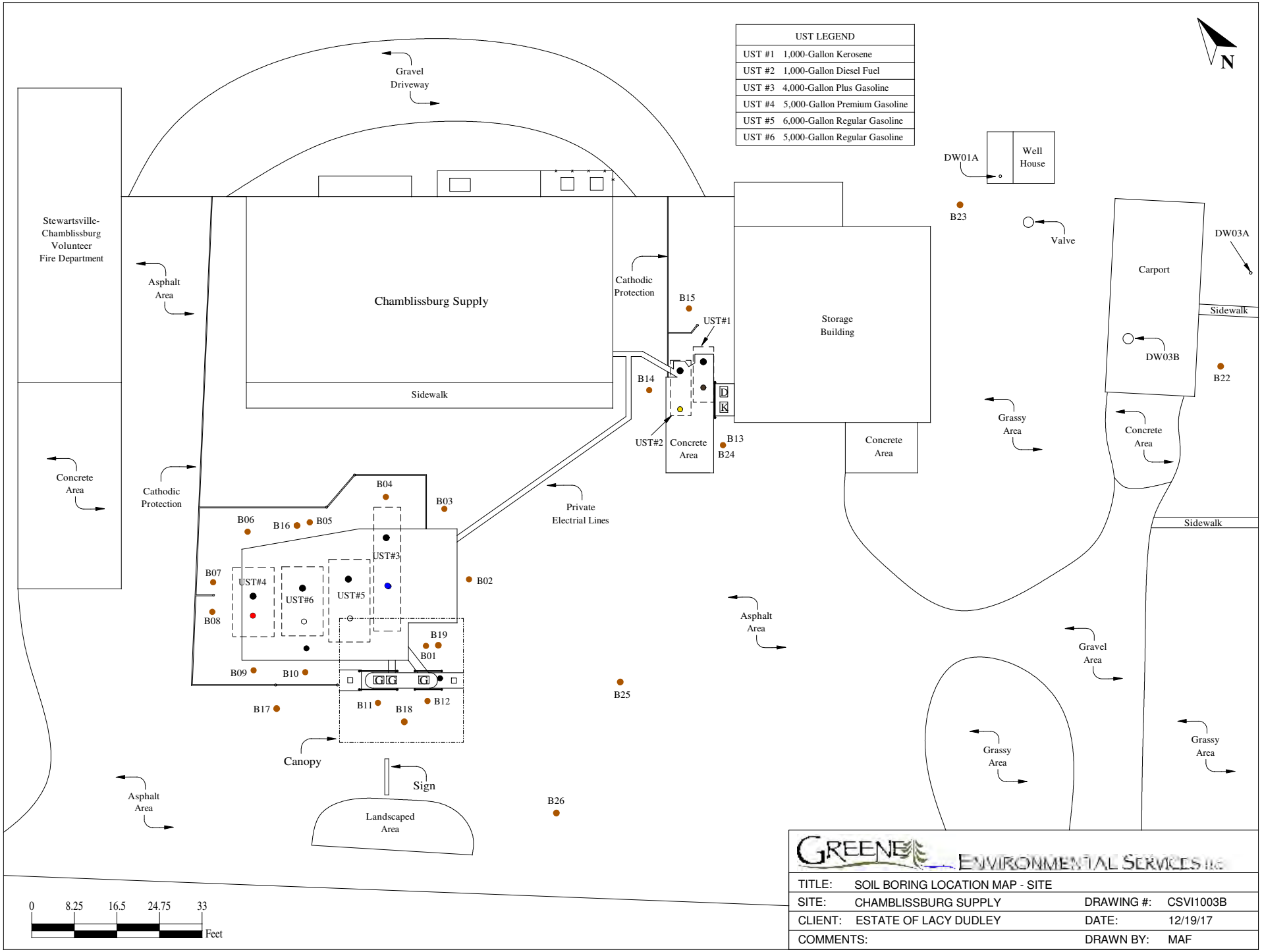
079.722368° W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Grassy Area
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Concrete Area
Cathodic Protection
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Private Electrial Lines
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Asphalt Area
Gravel Area
Sidewalk
Canopy
Sign
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Landscaped Area
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Grassy Area
Grassy Area
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16.5
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Feet
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DRAWING #: CSVI1003B
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/19/17
COMMENTS:
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GREENE ENVIRONMENTAL SERVICES INC

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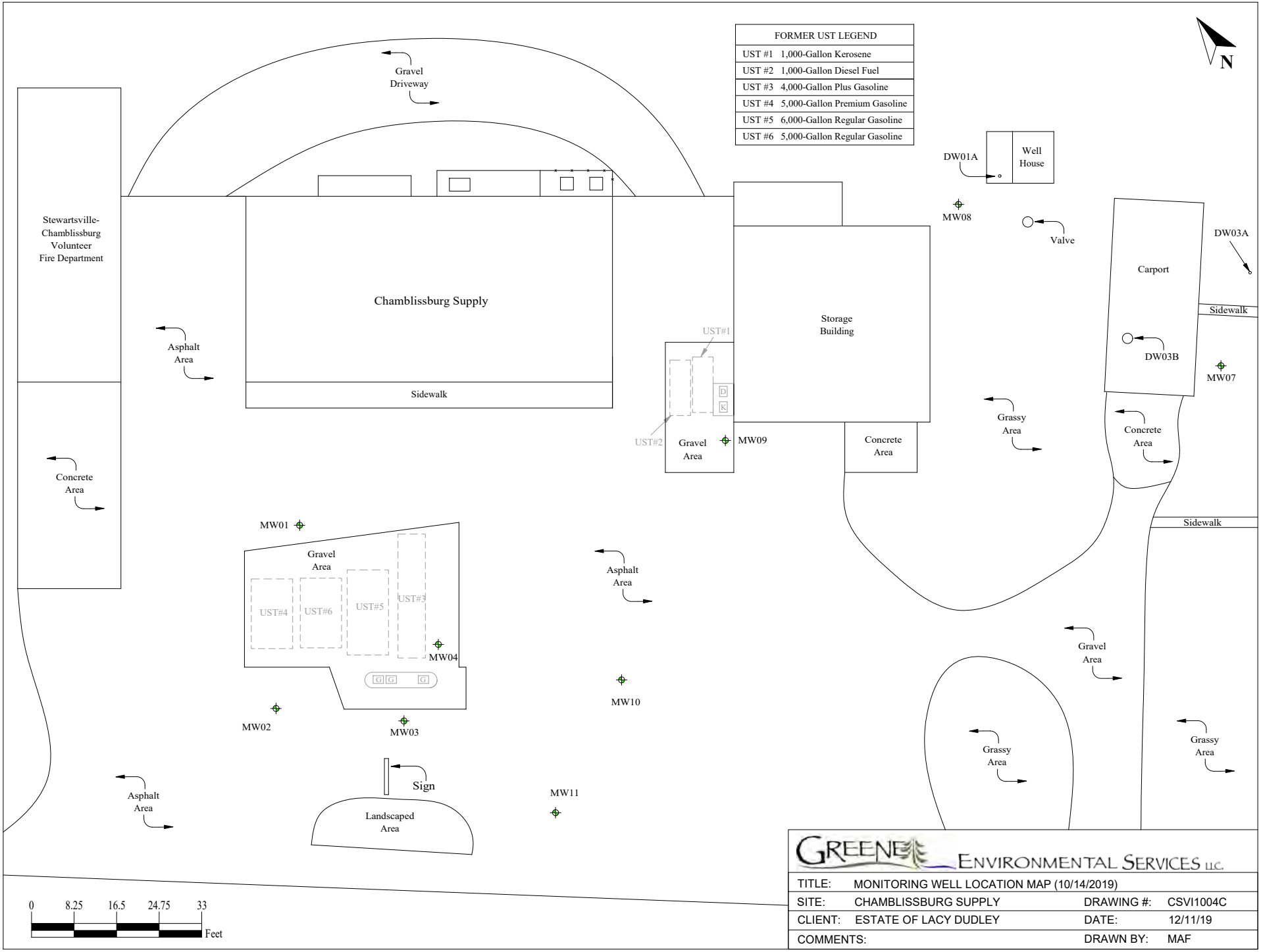
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UST#1
UST#2
Gravel Area
MW09
Concrete Area
DW01A
Well House
MW08
Valve
DW03A
Carport
Sidewalk
DW03B
MW07
Grassy Area
Concrete Area
Sidewalk
MW01
Gravel Area
UST#4
UST#6
UST#5
UST#3
MW04
MW02
MW03
Asphalt Area
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DRAWING #: CSVI1004C
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/11/19
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Feet

GREENE ENVIRONMENTAL SERVICES LLC.

TITLE:	MONITORING WELL LOCATION MAP - AERIAL		
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CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/11/19
COMMENTS:		DRAWN BY:	MAF

Deep Groundwater Monitoring Well Location Map

Chamblissburg Supply
10625 Stewartsville Road
Vinton, VA 24179

GREENE ENVIRONMENTAL SERVICES INC.
570 Redbud Hill Road, Rocky Mount, Virginia 24151

Office: 540-483-3311 or 800-215-2596
Fax: 540-483-3381

www.greene-environmental.com

BEDFORD COUNTY, VIRGINIA

Source: Google Earth

Scale: Not to Scale

Project: PSCM SP1

Client: Estate of Lacy Dudley

Greene Job #: CSVI1004

Date: December 10, 2019

N
W E
S

Latitude:
037.257362°N
Longitude:
079.722368° W

Surface Water Samples Location Map

Chamblissburg Supply
10625 Stewartsville Road
Vinton, VA 24179

GREENE ENVIRONMENTAL SERVICES INC.
570 Redbud Hill Road, Rocky Mount, Virginia 24151

Office: 540-483-3311 or 800-215-2596
Fax: 540-483-3381

www.greene-environmental.com

BEDFORD COUNTY, VIRGINIA

Source: Google Earth

Scale: Not to Scale

Project: PSCM SP1

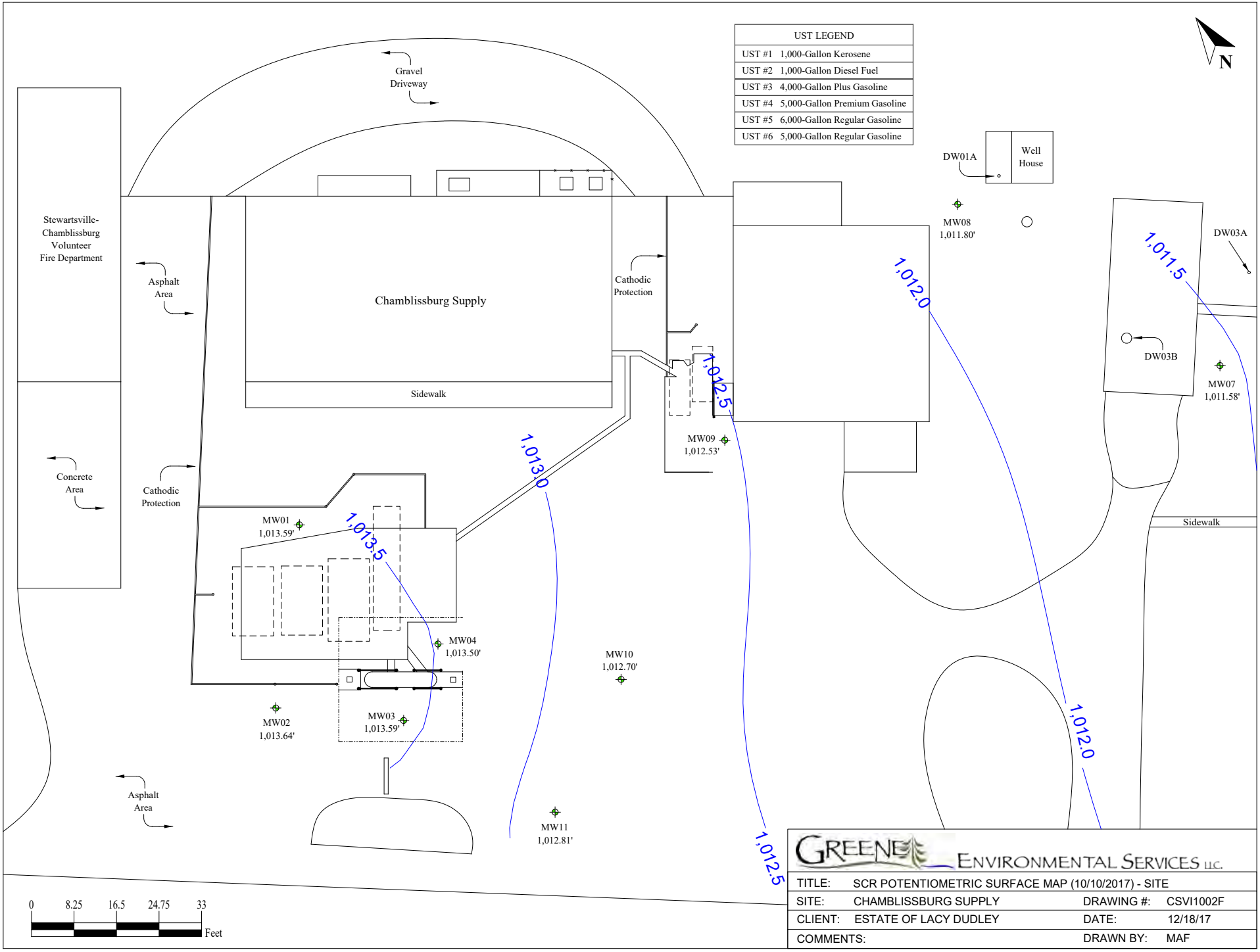
Client: Estate of Lacy Dudley

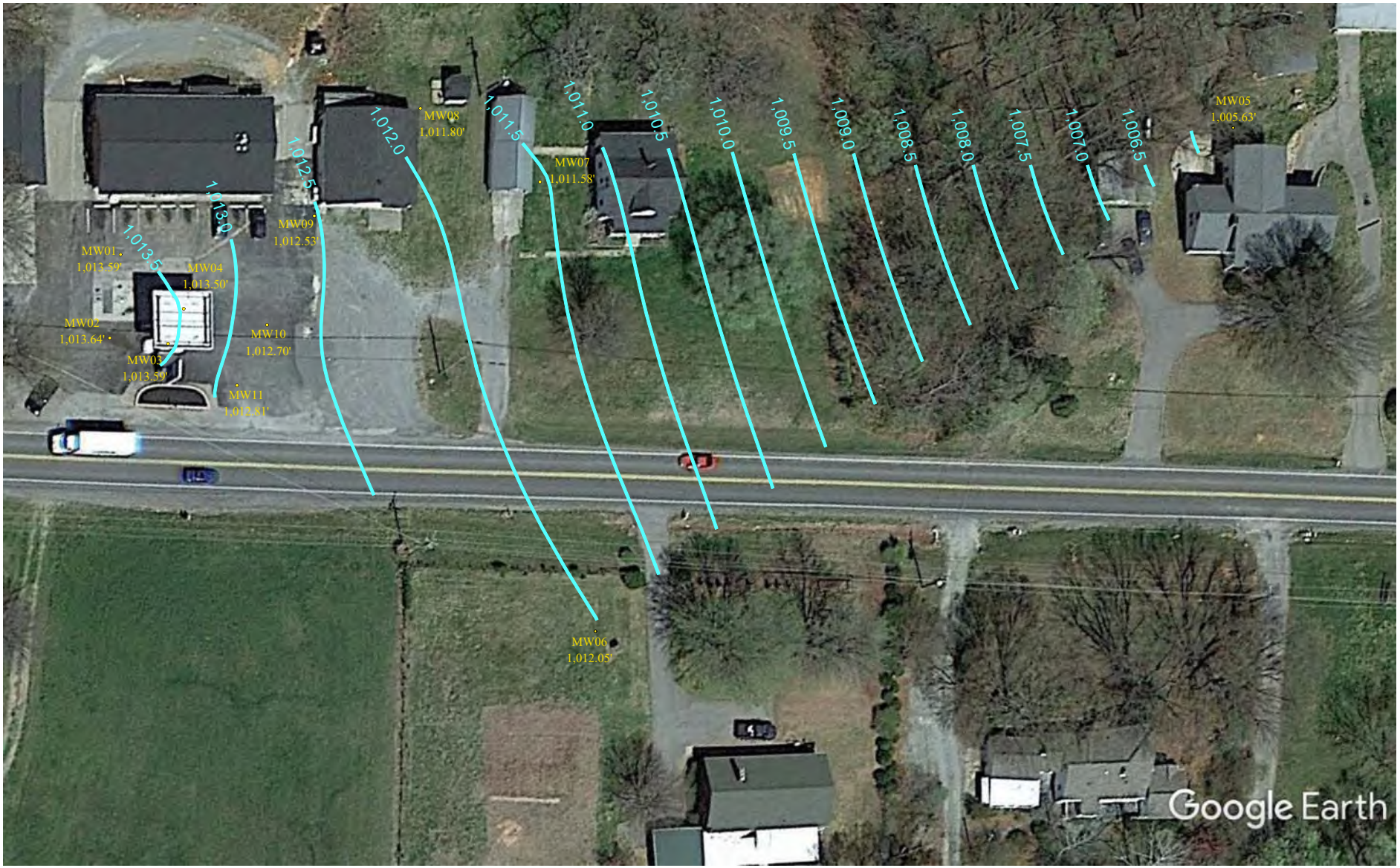
Greene Job #: CSVI1004

Date: December 11, 2019

N
W E
S

Latitude:
037.257362°N
Longitude:
079.722368° W

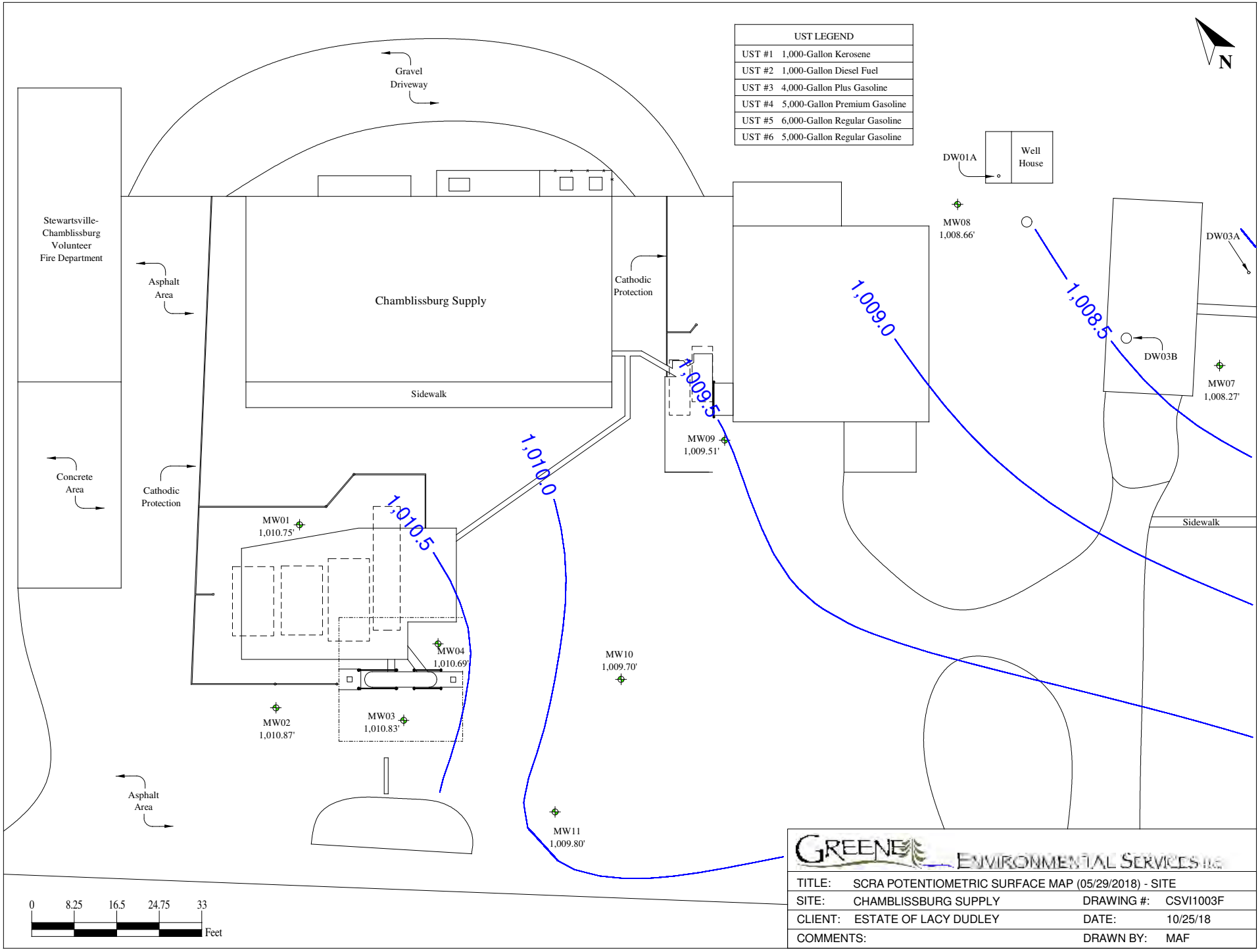

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Concrete Area
Cathodic Protection
Asphalt Area
DW01A
Well House
MW08 1,011.80'
DW03A
DW03B
MW07 1,011.58'
MW09 1,012.53'
MW01 1,013.59'
MW04 1,013.50'
MW10 1,012.70'
MW02 1,013.64'
MW03 1,013.59'
MW11 1,012.81'
1,013.0
1,013.5
1,012.5
1,012.0
1,011.5
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR POTENTIOMETRIC SURFACE MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002F
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS:
DRAWN BY: MAF

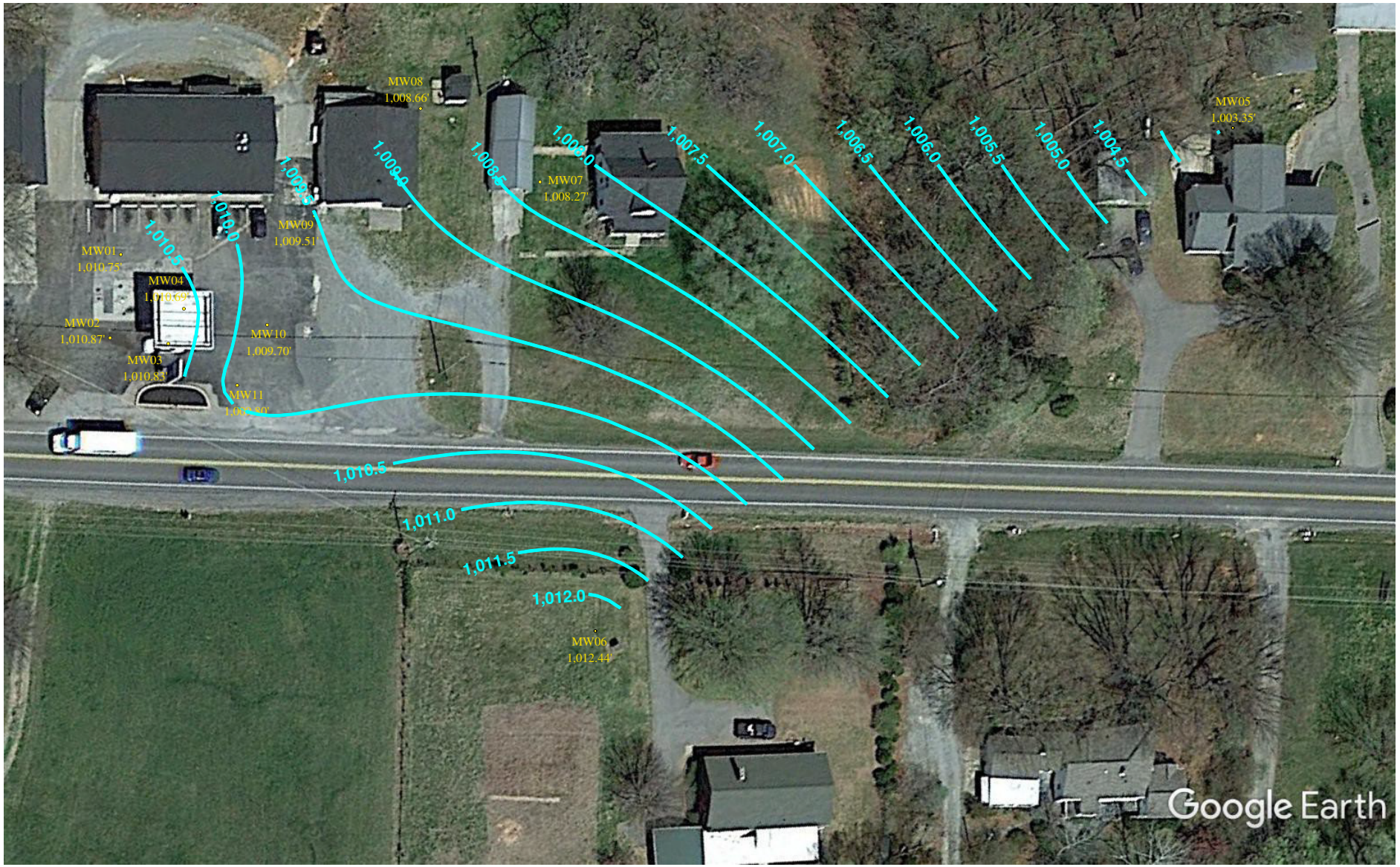


0 26.5 53 79.5 106 Feet

GREENE ENVIRONMENTAL SERVICES LLC.

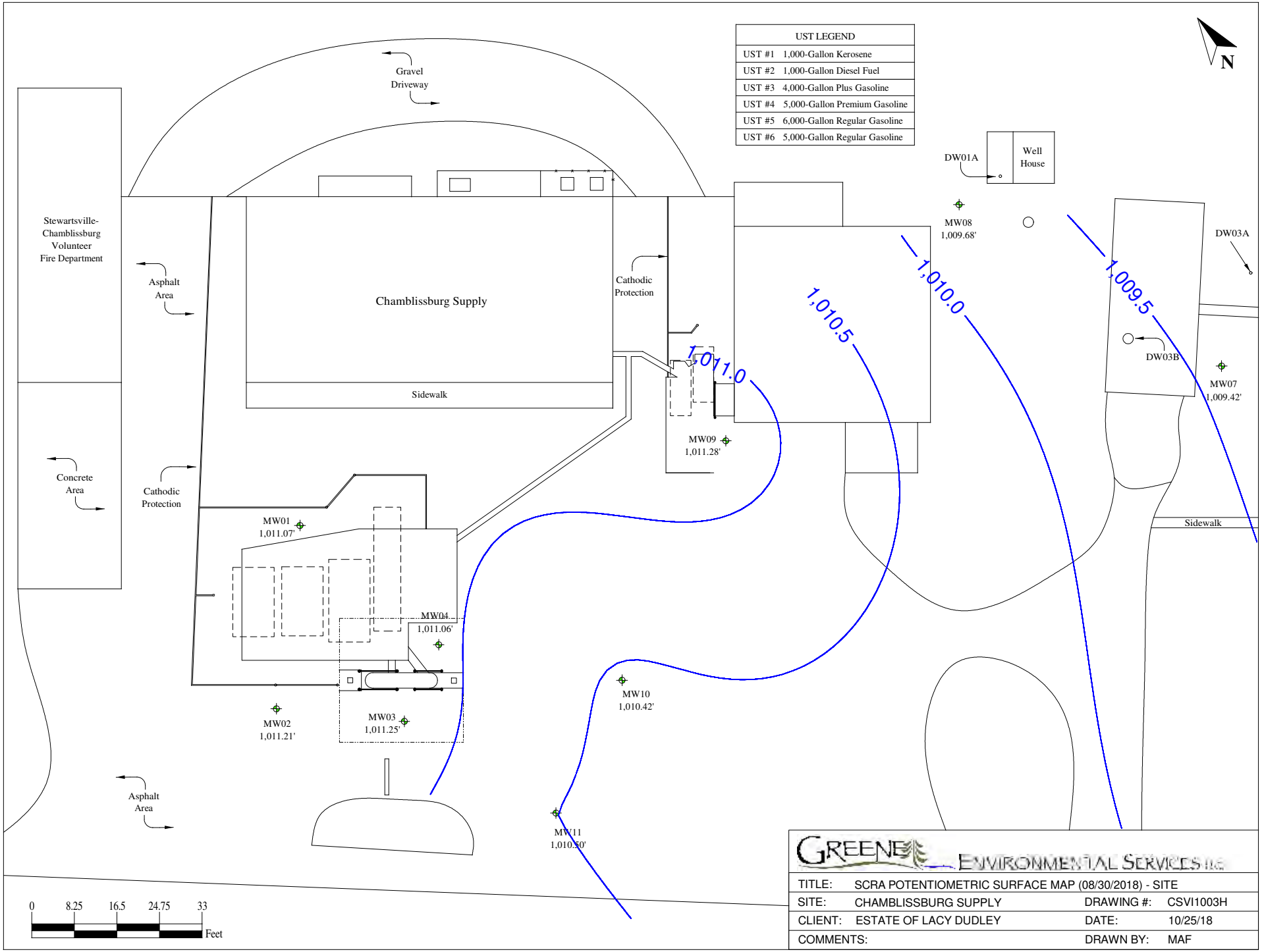
TITLE:	SCR POTENTIOMETRIC SURFACE MAP (10/10/2017) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1002G
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:		DRAWN BY:	MAF

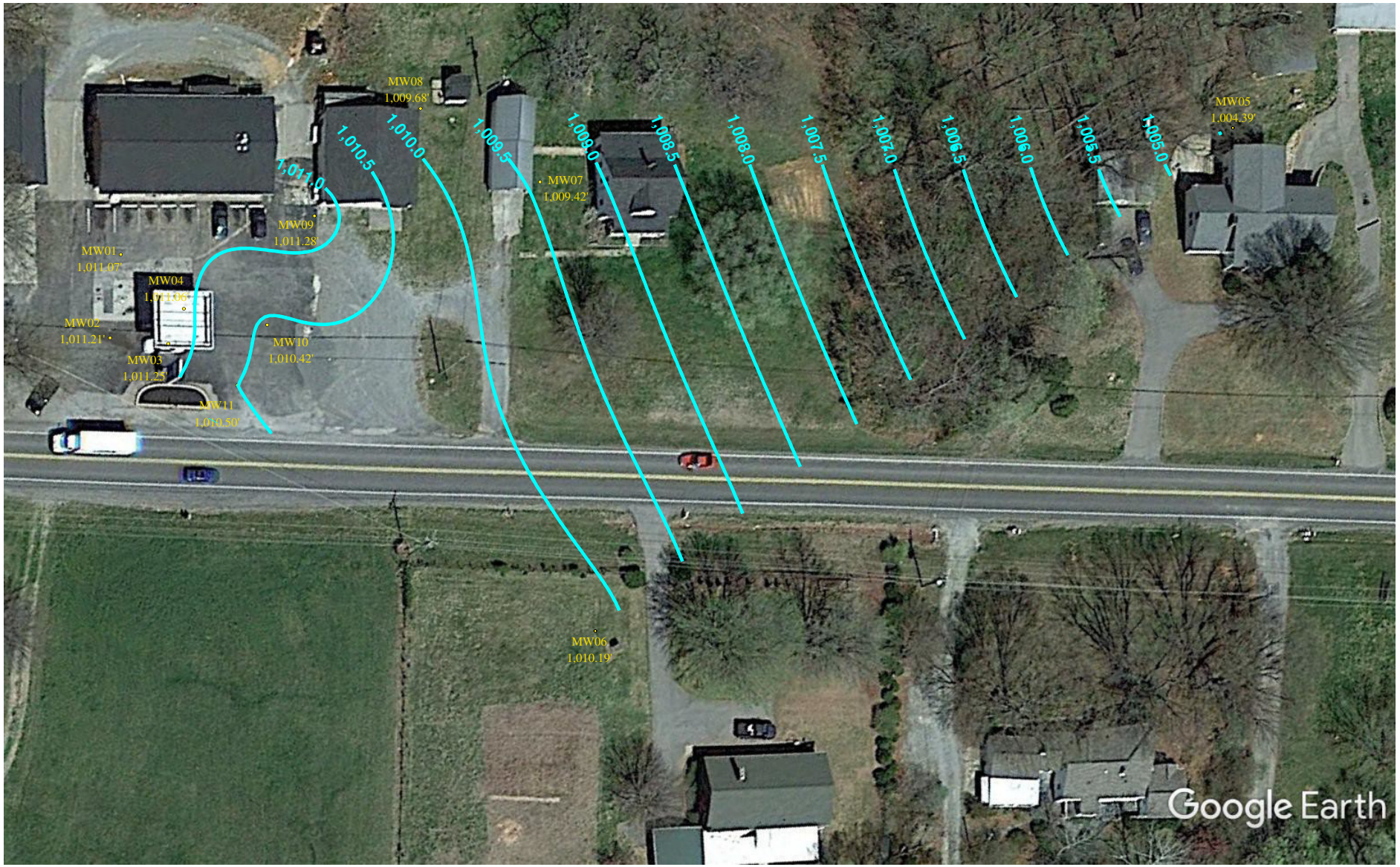

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Concrete Area
Cathodic Protection
Asphalt Area
DW01A
Well House
MW08 1,008.66'
DW03A
DW03B
MW07 1,008.27'
MW09 1,009.51'
1,009.0
1,008.5
1,009.5
1,010.0
1,010.5
MW01 1,010.75'
MW04 1,010.69'
MW10 1,009.70'
MW02 1,010.87'
MW03 1,010.83'
MW11 1,009.80'
Sidewalk
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA POTENTIOMETRIC SURFACE MAP (05/29/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003F
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/25/18
COMMENTS:
DRAWN BY: MAF



GREENE ENVIRONMENTAL SERVICES INC

TITLE:	SCRA POTENTIOMETRIC SURFACE MAP (05/29/2018) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1003G
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	10/25/18
COMMENTS:		DRAWN BY:	MAF

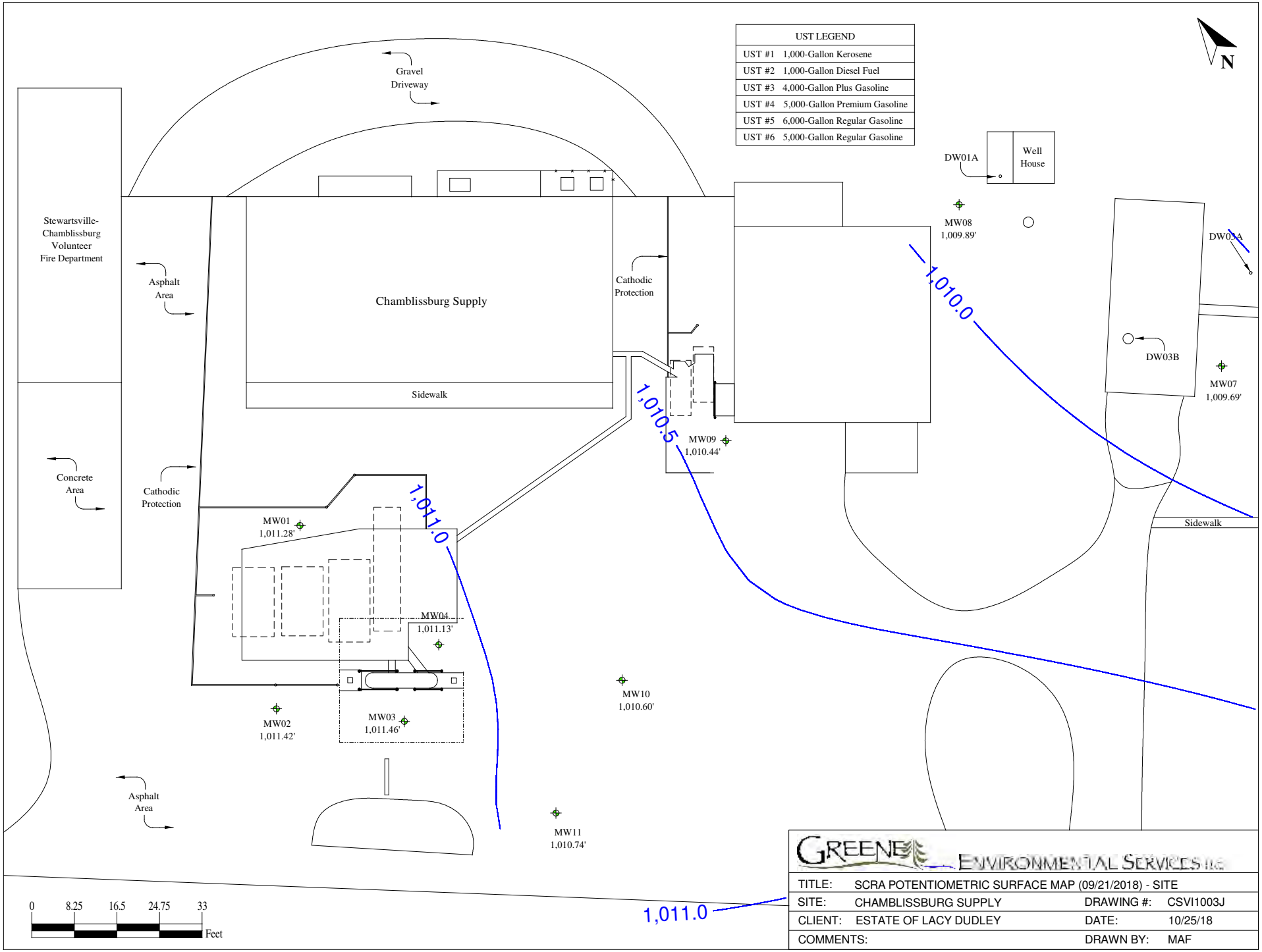

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Concrete Area
Cathodic Protection
Asphalt Area
DW01A
Well House
MW08 1,009.68'
DW03A
DW03B
MW07 1,009.42'
1,010.0
1,009.5
1,010.5
1,011.0
MW09 1,011.28'
MW01 1,011.07'
MW04 1,011.06'
MW10 1,010.42'
MW02 1,011.21'
MW03 1,011.25'
MW11 1,010.50'
Sidewalk
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA POTENTIOMETRIC SURFACE MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003H
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/25/18
COMMENTS:
DRAWN BY: MAF

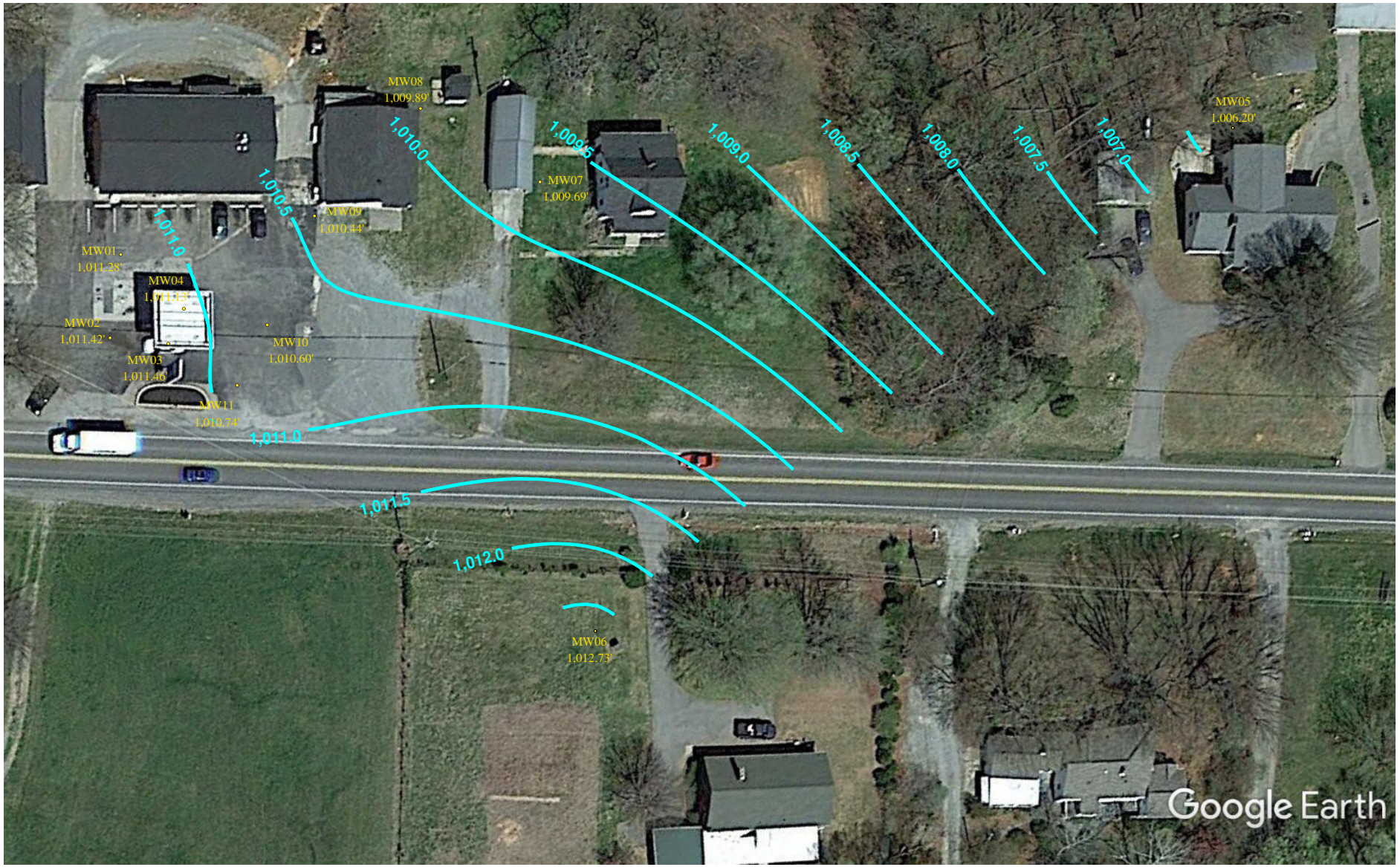


0 26.5 53 79.5 106 Feet

GREENE ENVIRONMENTAL SERVICES INC

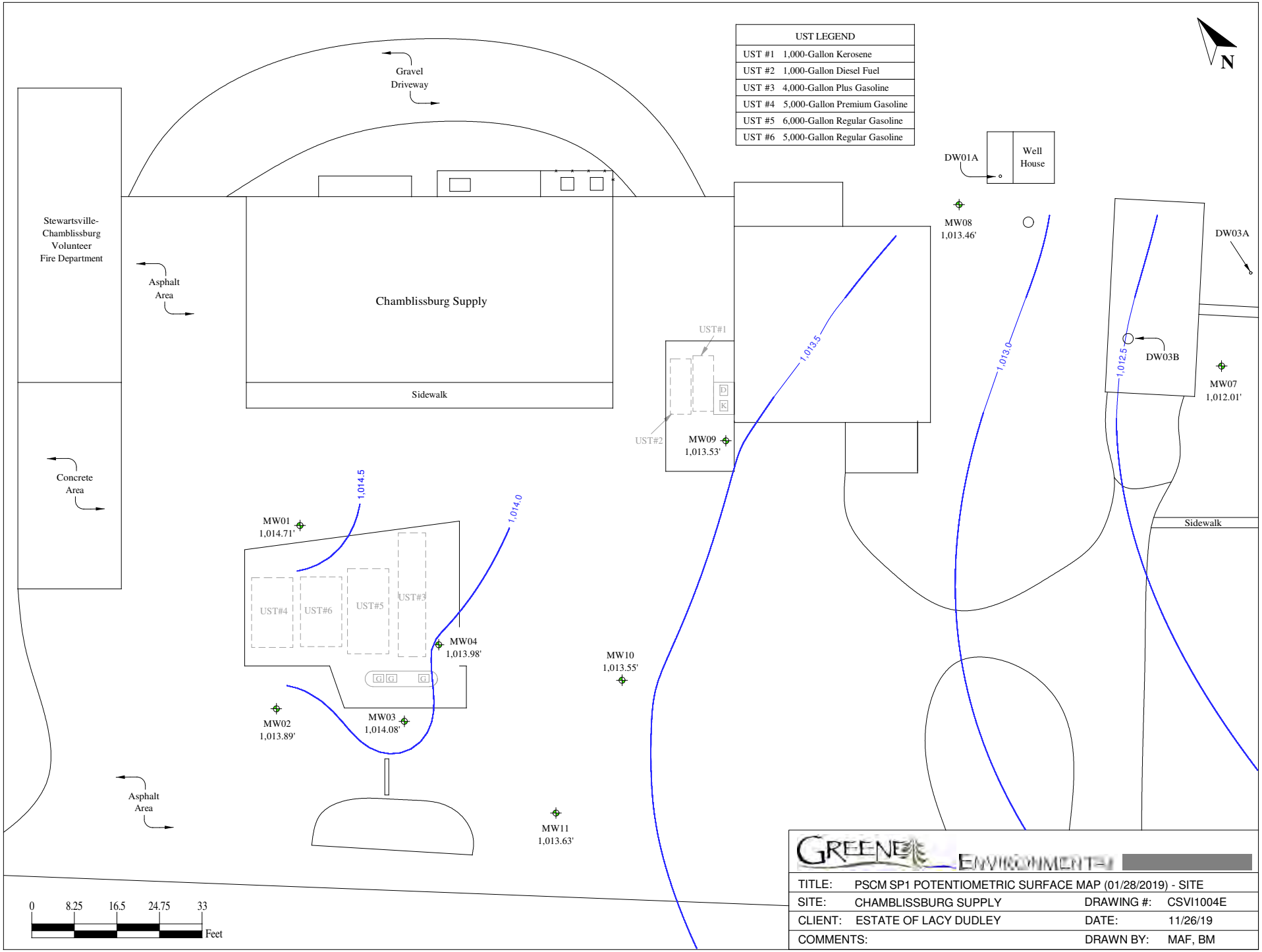
TITLE:	SCRA POTENTIOMETRIC SURFACE MAP (08/30/2018) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1003I
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	10/25/18
COMMENTS:		DRAWN BY:	MAF

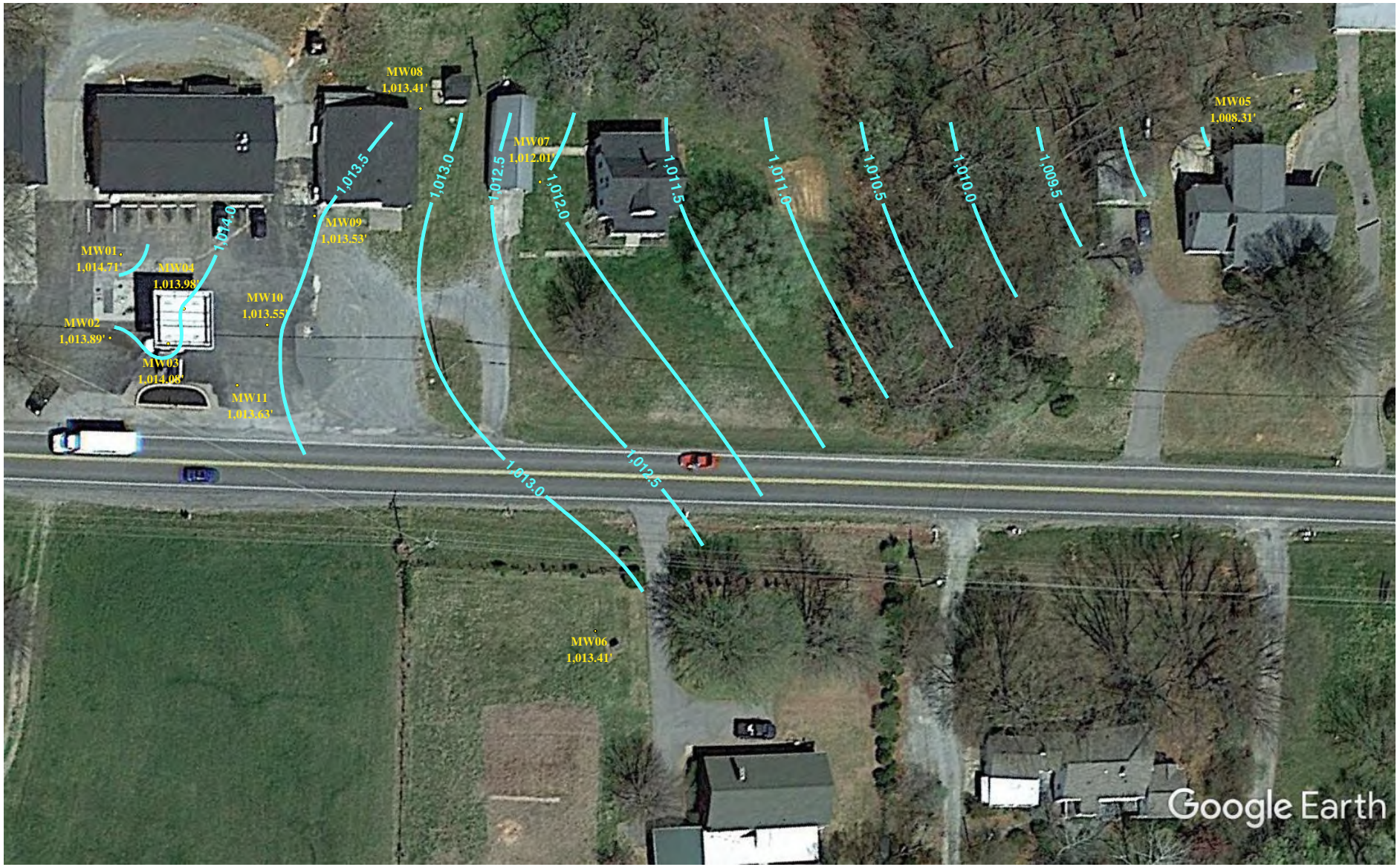

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Concrete Area
Cathodic Protection
Asphalt Area
DW01A
Well House
MW08 1,009.89'
DW03A
DW03B
MW07 1,009.69'
MW09 1,010.44'
1,010.0
1,010.5
1,011.0
MW01 1,011.28'
MW04 1,011.13'
MW10 1,010.60'
MW02 1,011.42'
MW03 1,011.46'
MW11 1,010.74'
Sidewalk
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA POTENTIOMETRIC SURFACE MAP (09/21/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003J
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/25/18
COMMENTS:
DRAWN BY: MAF



GREENE ENVIRONMENTAL SERVICES INC

TITLE:	SCRA POTENTIOMETRIC SURFACE MAP (09/21/2018) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1003K
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	10/25/18
COMMENTS:		DRAWN BY:	MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Sidewalk
Concrete Area
Asphalt Area
DW01A
Well House
MW08 1,013.46'
DW03A
DW03B
MW07 1,012.01'
UST#1
UST#2
MW09 1,013.53'
1,013.5
1,013.0
1,012.5
1,014.5
1,014.0
MW01 1,014.71'
UST#4
UST#6
UST#5
UST#3
MW04 1,013.98'
MW10 1,013.55'
MW02 1,013.89'
MW03 1,014.08'
MW11 1,013.63'
Sidewalk
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL
TITLE: PSCM SP1 POTENTIOMETRIC SURFACE MAP (01/28/2019) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1004E
CLIENT: ESTATE OF LACY DUDLEY
DATE: 11/26/19
COMMENTS:
DRAWN BY: MAF, BM

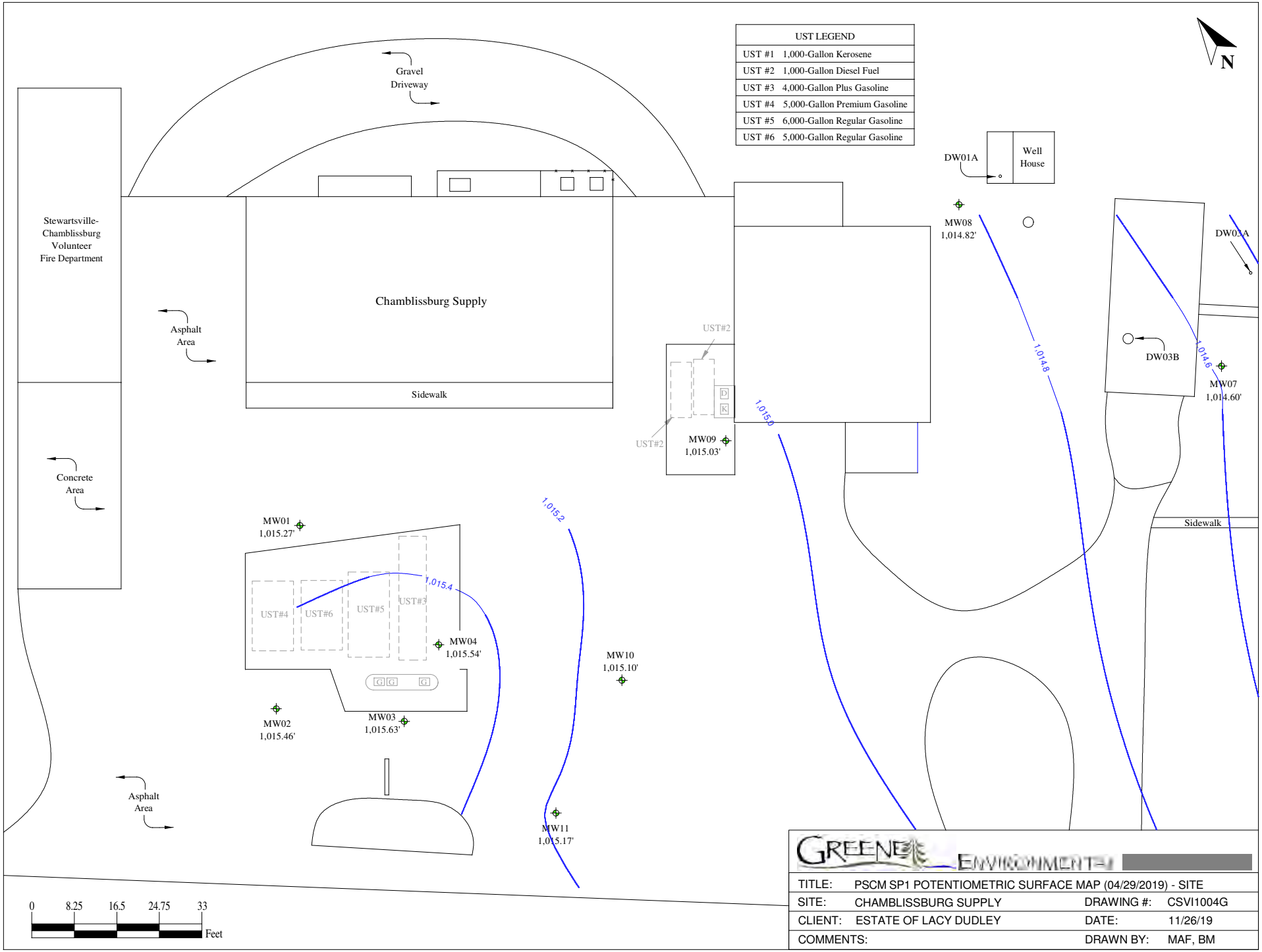


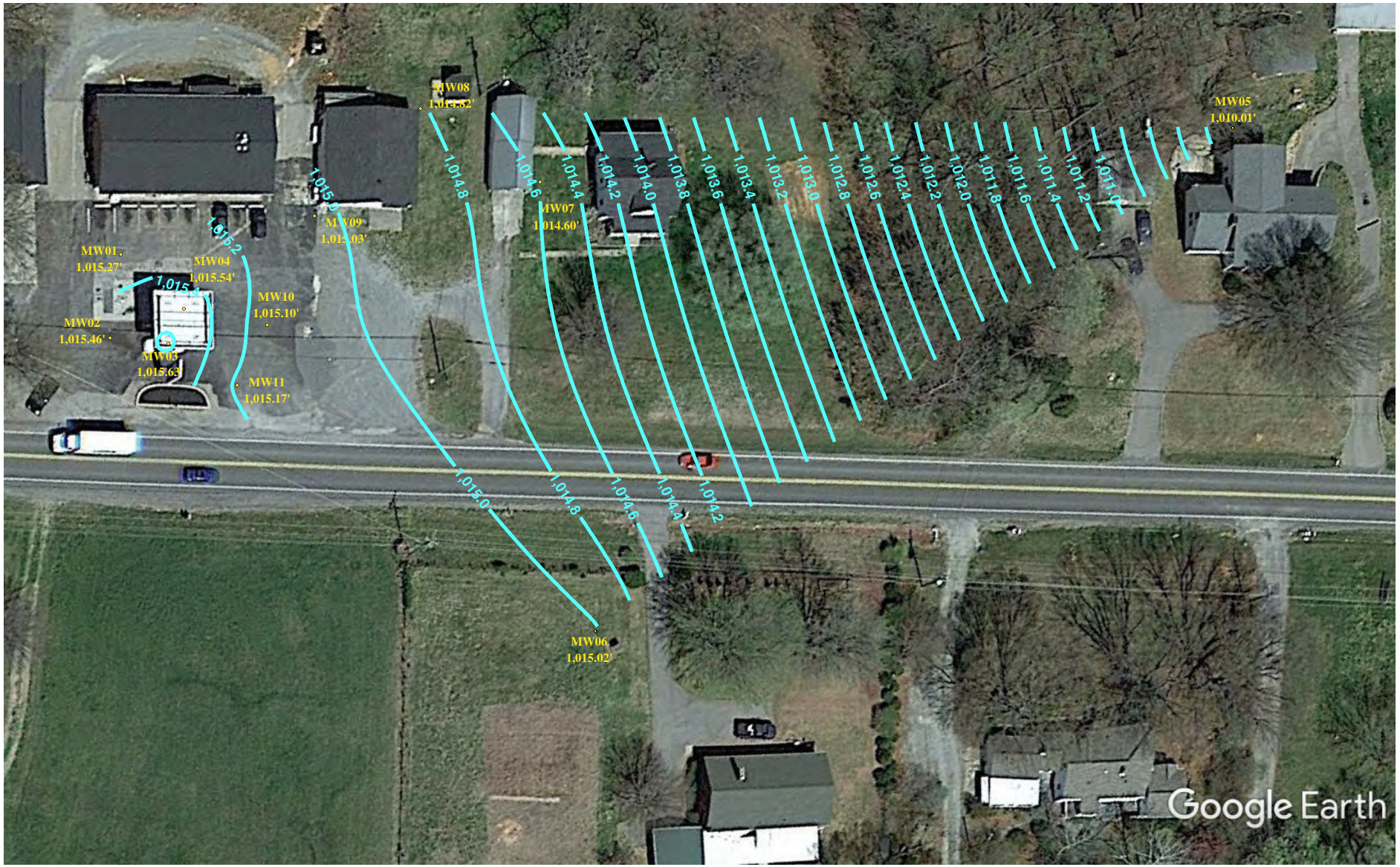
0 26.5 53 79.5 106 Feet

*Contours may be disproportionately affected by data point distribution

GREENE ENVIRONMENTAL

TITLE:	PSCM SP1 POTENTIOMETRIC SURFACE MAP (01/28/2019) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1004F
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	11/26/19
COMMENTS:		DRAWN BY:	MAF, BM


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Chamblissburg Supply
Asphalt Area
Sidewalk
Concrete Area
Asphalt Area
DW01A
Well House
MW08 1,014.82'
DW03A
DW03B
MW07 1,014.60'
UST#2
UST#2
MW09 1,015.03'
1,015.0
1,014.8
1,014.6
1,015.2
1,015.4
MW01 1,015.27'
UST#4
UST#6
UST#5
UST#3
MW04 1,015.54'
MW10 1,015.10'
MW02 1,015.46'
MW03 1,015.63'
MW11 1,015.17'
Sidewalk
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL
TITLE: PSCM SP1 POTENTIOMETRIC SURFACE MAP (04/29/2019) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1004G
CLIENT: ESTATE OF LACY DUDLEY
DATE: 11/26/19
COMMENTS:
DRAWN BY: MAF, BM

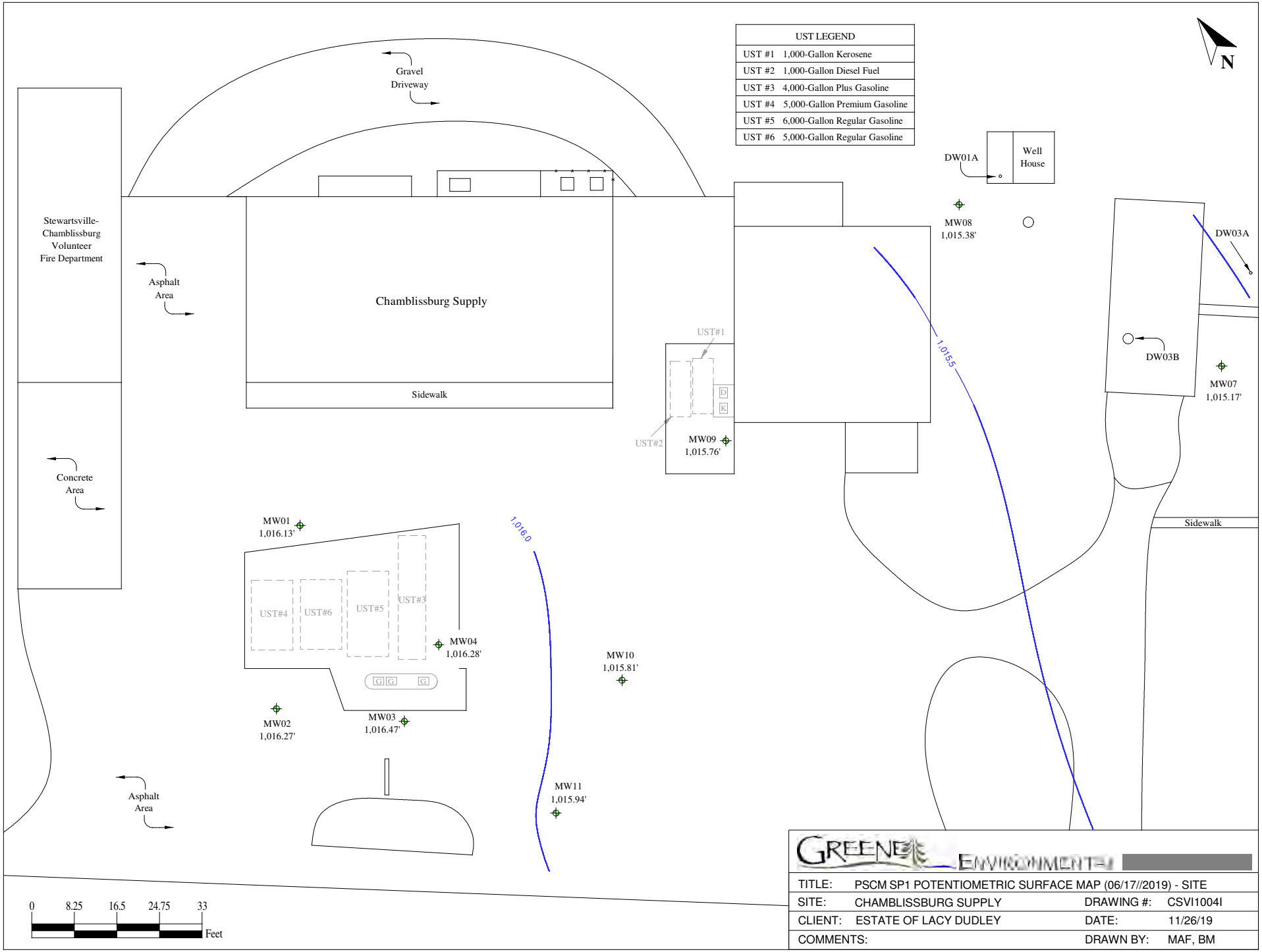


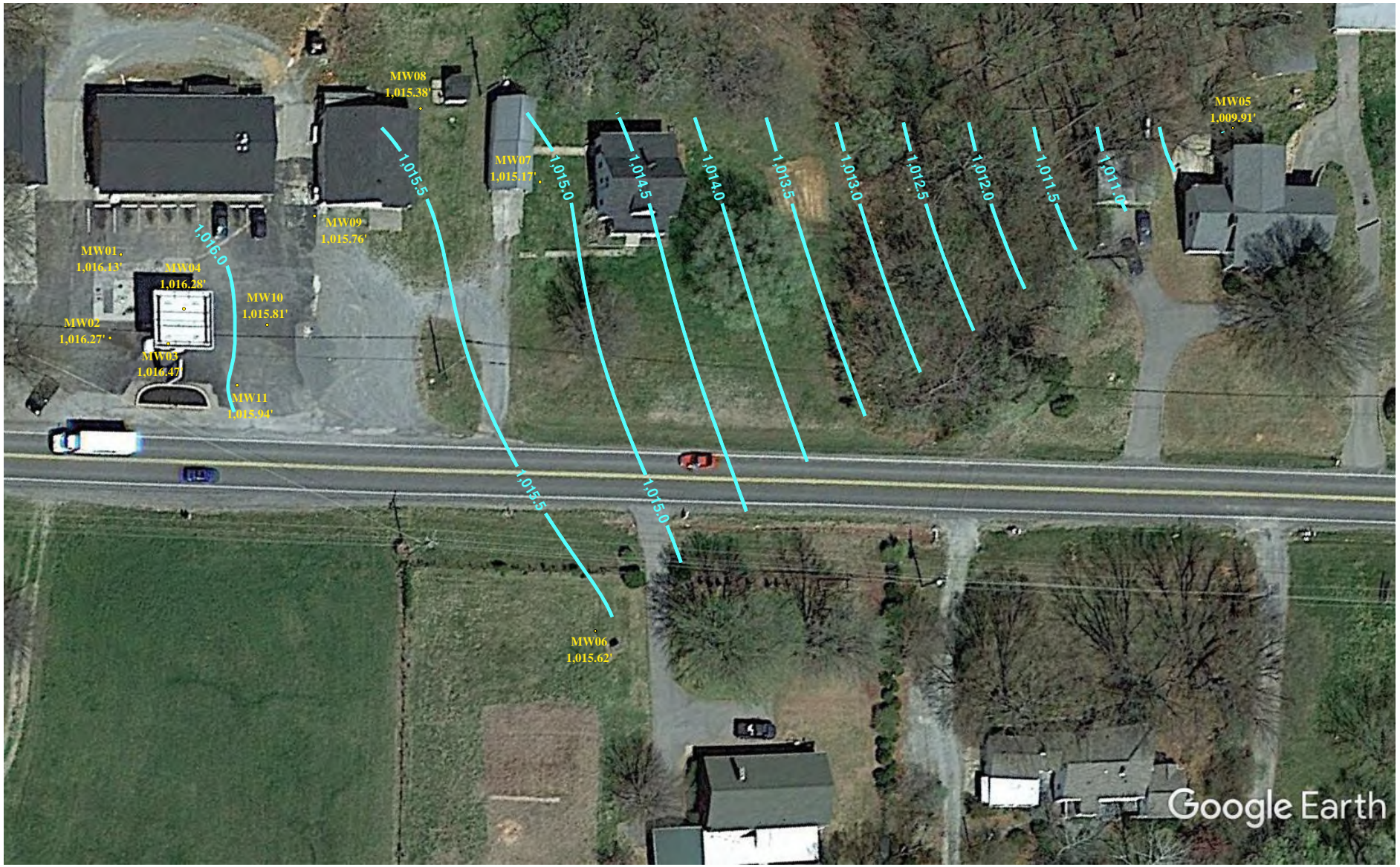
0 26.5 53 79.5 106 Feet

*Contours may be disproportionately affected by data point distribution

GREENE ENVIRONMENTAL

TITLE:	PSCM SP1 POTENTIOMETRIC SURFACE MAP (04/29/2019) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1004H
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	11/26/19
COMMENTS:		DRAWN BY:	MAF, BM


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Sidewalk
Concrete Area
Asphalt Area
DW01A
Well House
MW08 1,015.38'
DW03A
DW03B
MW07 1,015.17'
UST#1
UST#2
MW09 1,015.76'
1,015.5
1,016.0
MW01 1,016.13'
UST#4
UST#6
UST#5
UST#3
MW04 1,016.28'
MW10 1,015.81'
MW02 1,016.27'
MW03 1,016.47'
MW11 1,015.94'
Sidewalk
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL
TITLE: PSCM SP1 POTENTIOMETRIC SURFACE MAP (06/17//2019) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1004I
CLIENT: ESTATE OF LACY DUDLEY
DATE: 11/26/19
COMMENTS:
DRAWN BY: MAF, BM

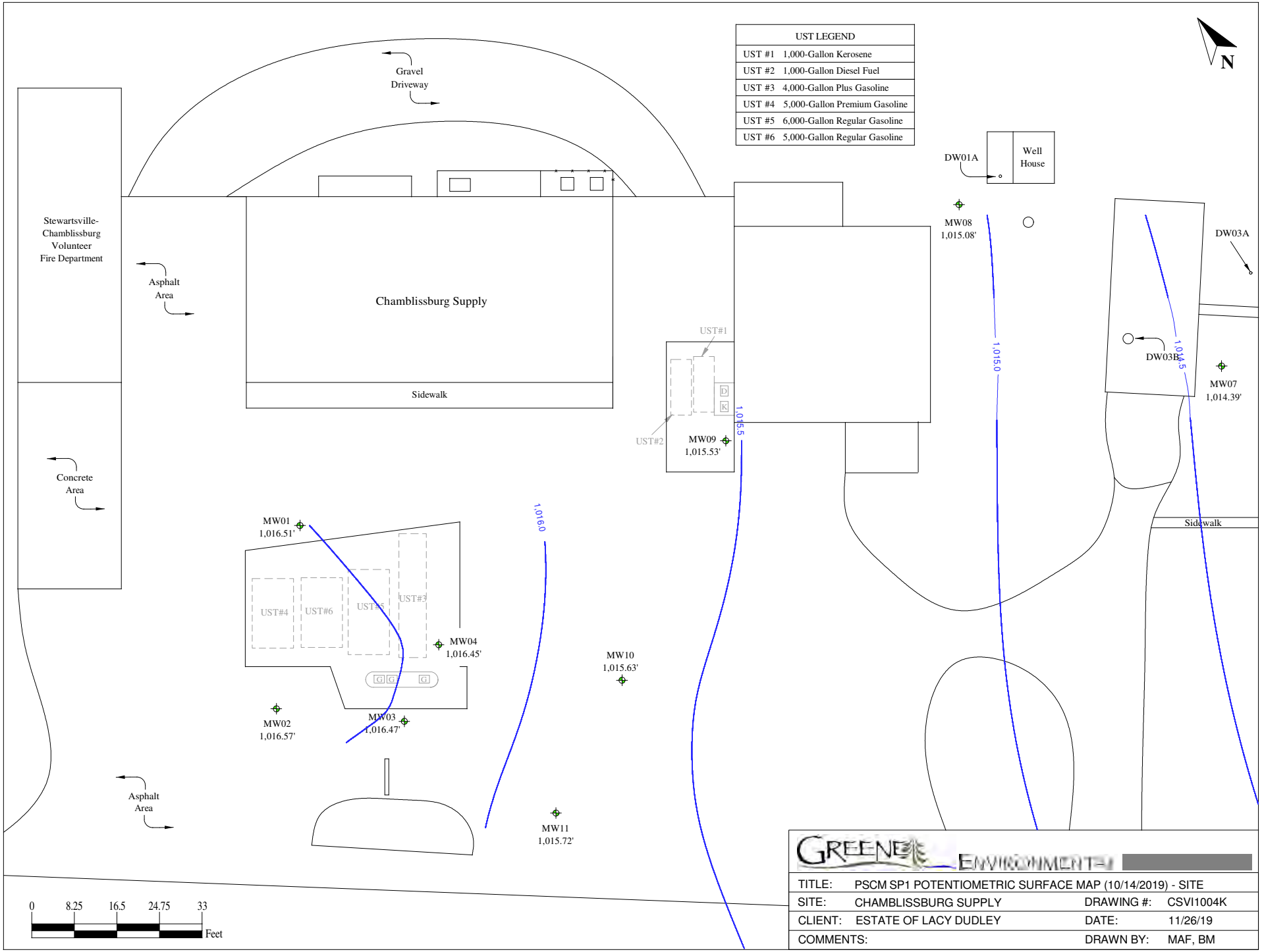


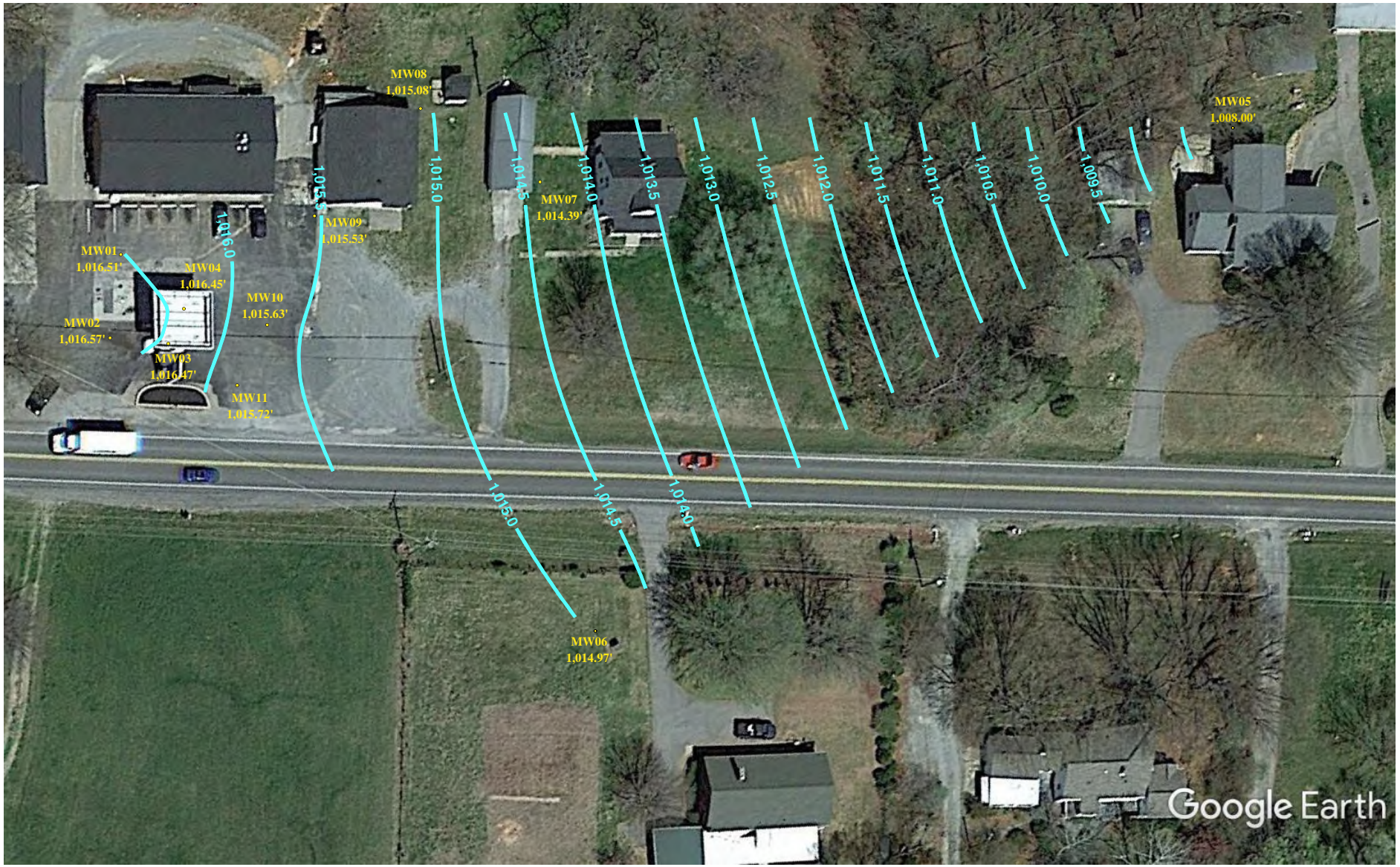
0 26.5 53 79.5 106 Feet

*Contours may be disproportionately affected by data point distribution

GREENE ENVIRONMENTAL

TITLE:	PSCM SP1 POTENTIOMETRIC SURFACE MAP (06/17/2019) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1004J
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	11/26/19
COMMENTS:		DRAWN BY:	MAF, BM


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Sidewalk
Concrete Area
Asphalt Area
DW01A
Well House
MW08 1,015.08'
DW03A
DW03B
MW07 1,014.39'
UST#1
UST#2
MW09 1,015.53'
1,015.5
1,015.0
1,014.5
1,016.0
MW01 1,016.51'
UST#4
UST#6
UST#5
UST#3
MW04 1,016.45'
MW10 1,015.63'
MW02 1,016.57'
MW03 1,016.47'
MW11 1,015.72'
Sidewalk
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL
TITLE: PSCM SP1 POTENTIOMETRIC SURFACE MAP (10/14/2019) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1004K
CLIENT: ESTATE OF LACY DUDLEY
DATE: 11/26/19
COMMENTS:
DRAWN BY: MAF, BM

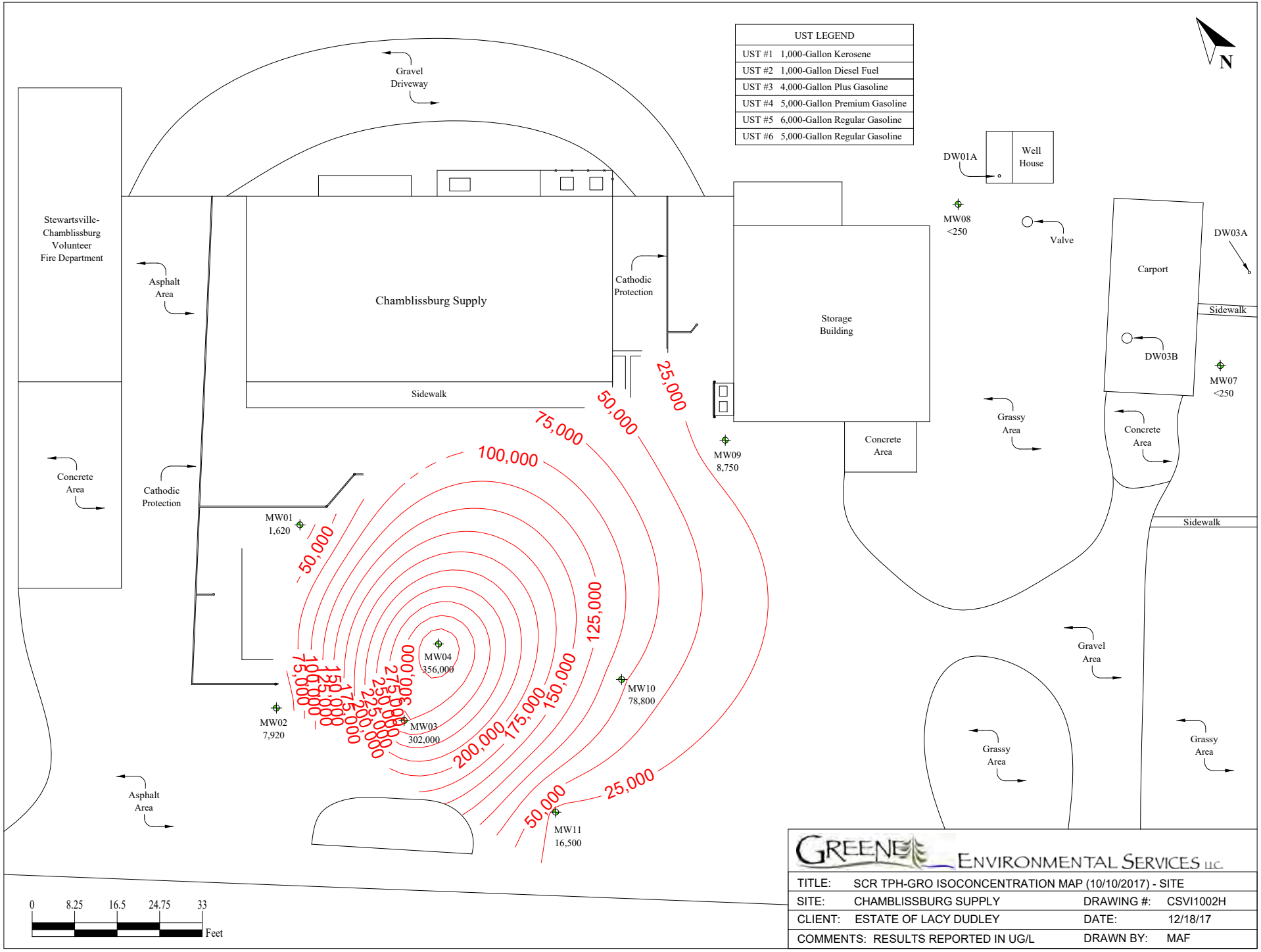


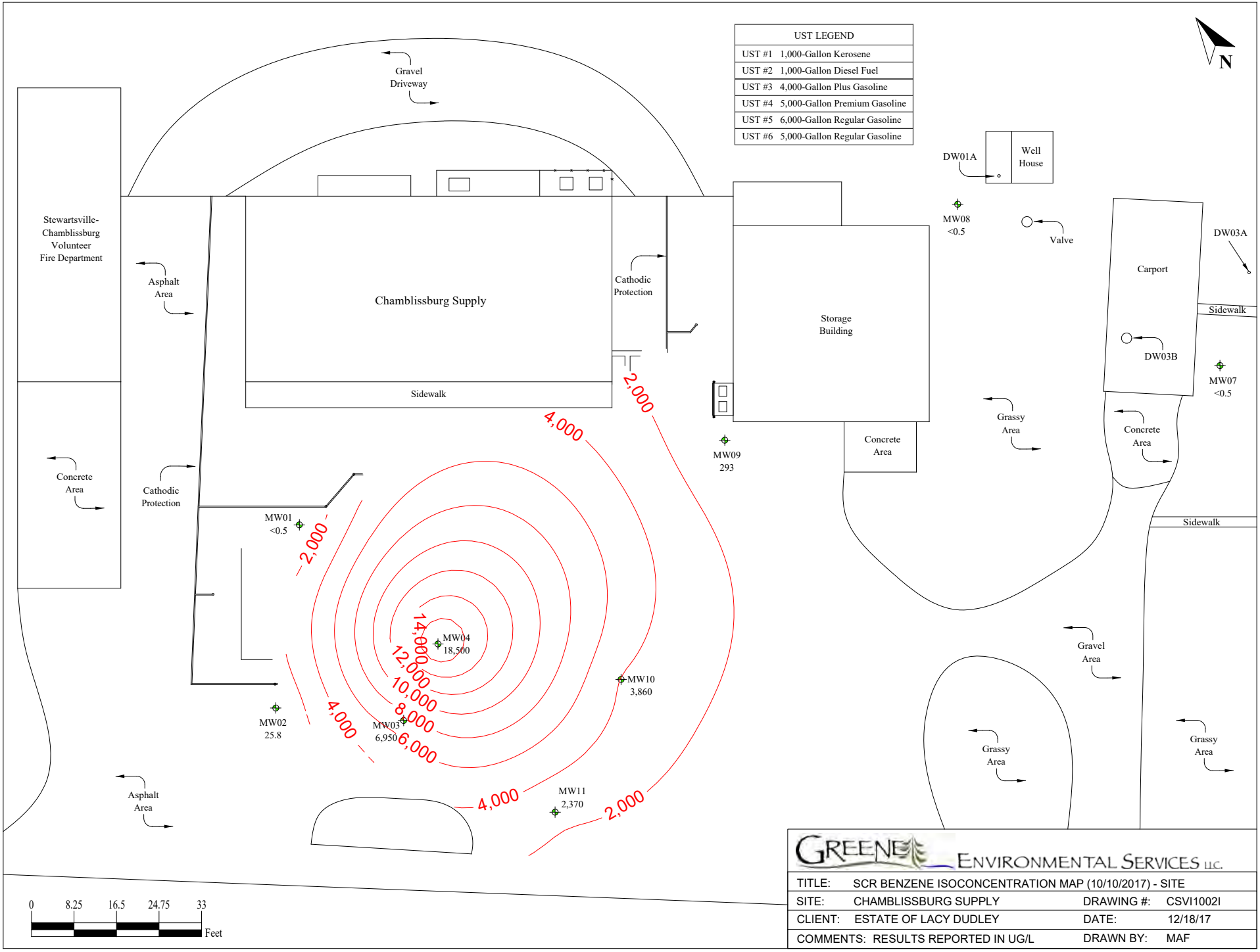
0 26.5 53 79.5 106 Feet

*Contours may be disproportionately affected by data point distribution

GREENE ENVIRONMENTAL

TITLE:	PSCM SP1 POTENTIOMETRIC SURFACE MAP (10/14/2019) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1004L
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	11/26/19
COMMENTS:		DRAWN BY:	MAF, BM


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Storage Building
Sidewalk
Concrete Area
Cathodic Protection
Concrete Area
MW01 1,620
MW02 7,920
MW03 302,000
MW04 356,000
MW09 8,750
MW10 78,800
MW11 16,500
DW01A
Well House
MW08 <250
Valve
DW03A
Carport
Sidewalk
DW03B
MW07 <250
Grassy Area
Concrete Area
Sidewalk
Gravel Area
Grassy Area
Grassy Area
Asphalt Area
25,000
50,000
75,000
100,000
125,000
150,000
175,000
200,000
225,000
250,000
275,000
300,000
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR TPH-GRO ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002H
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF


UST LEGEND
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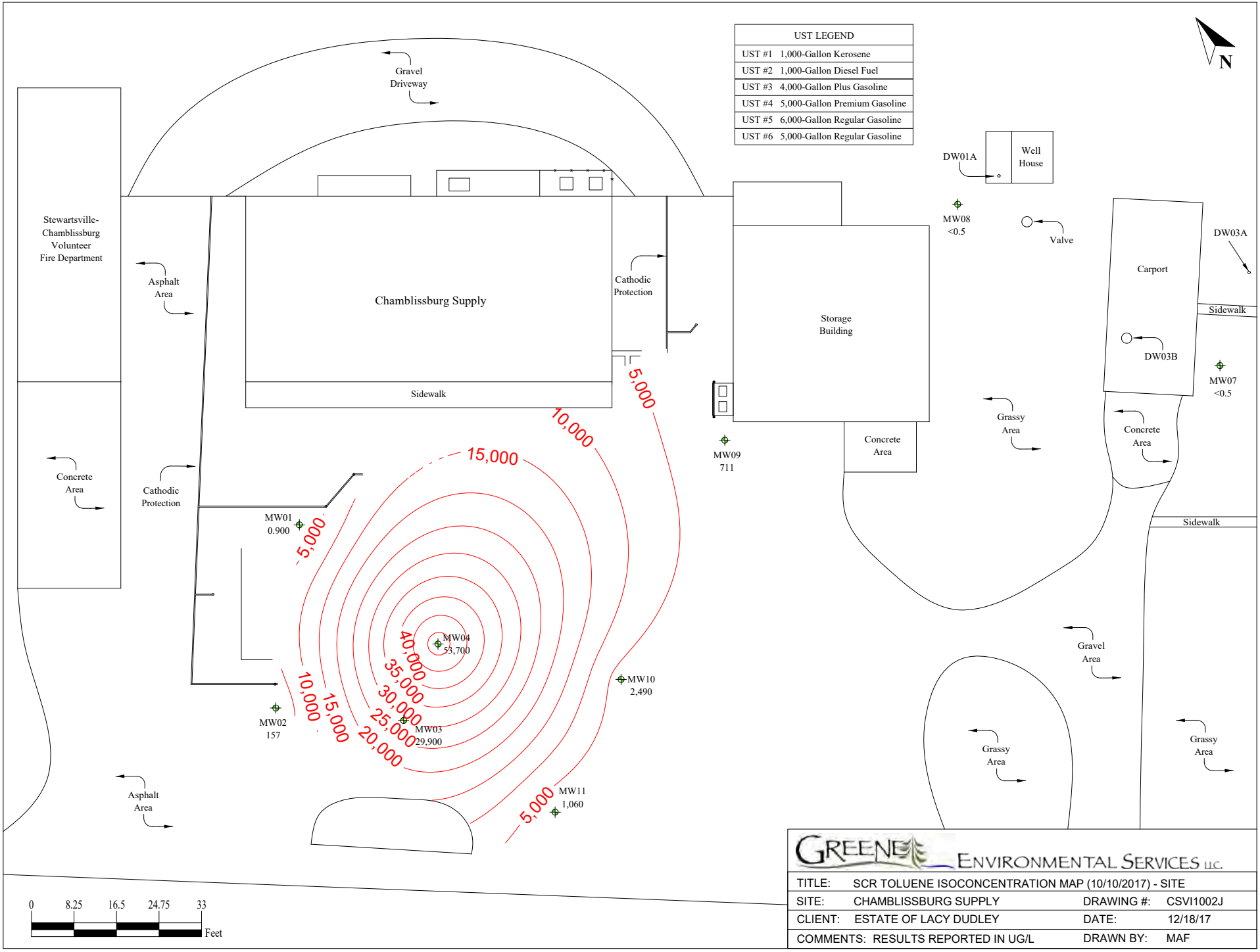
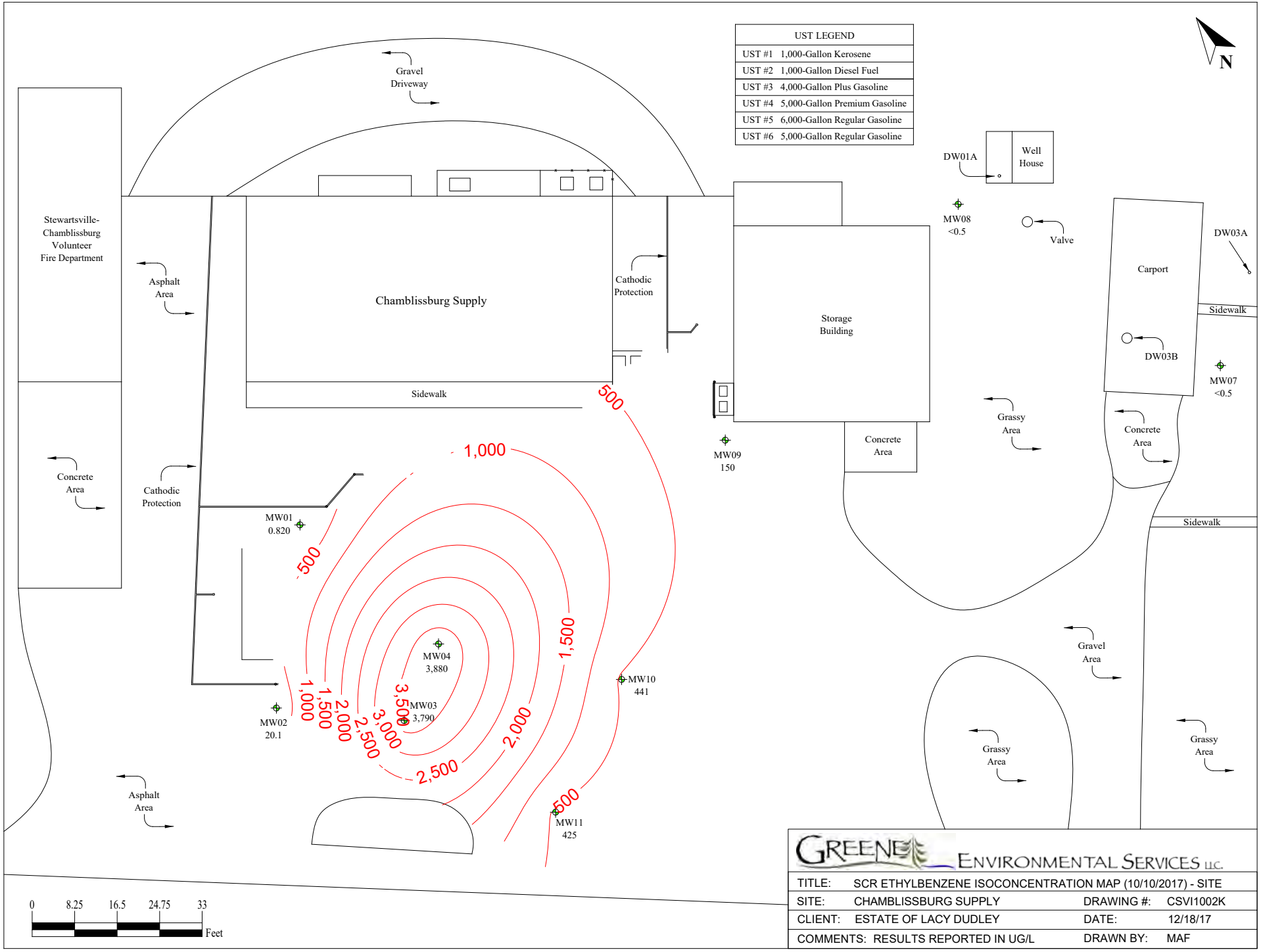
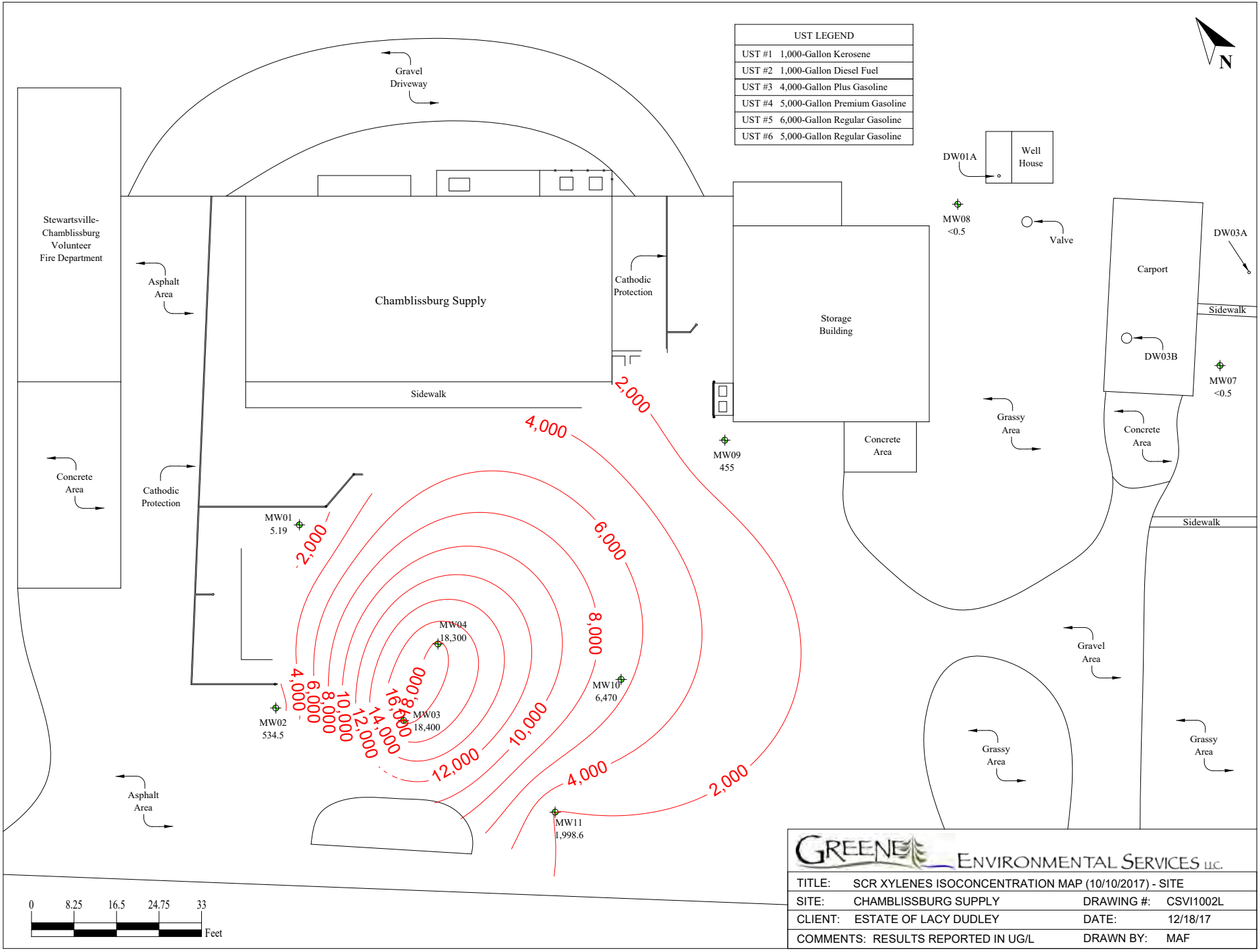
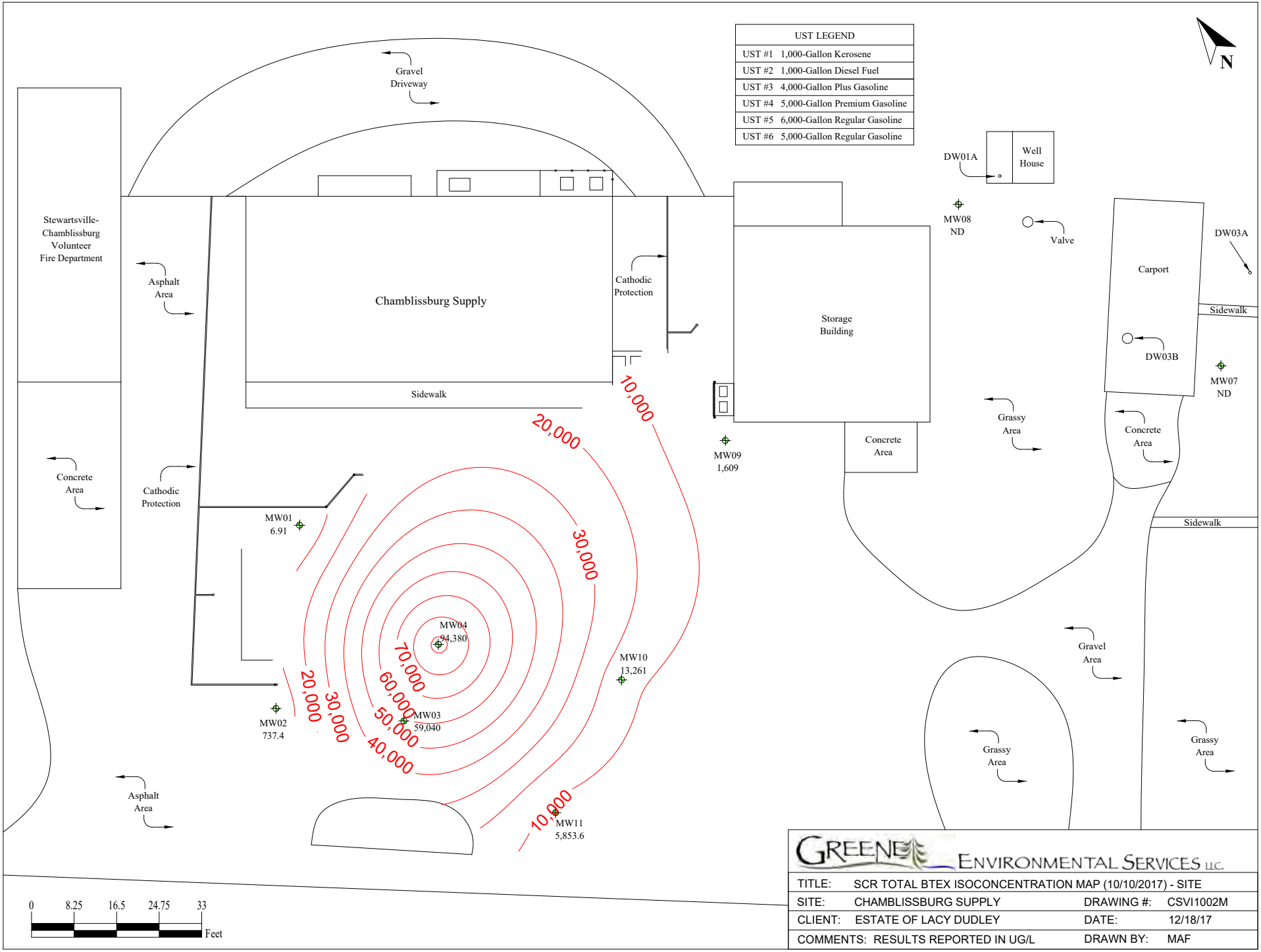
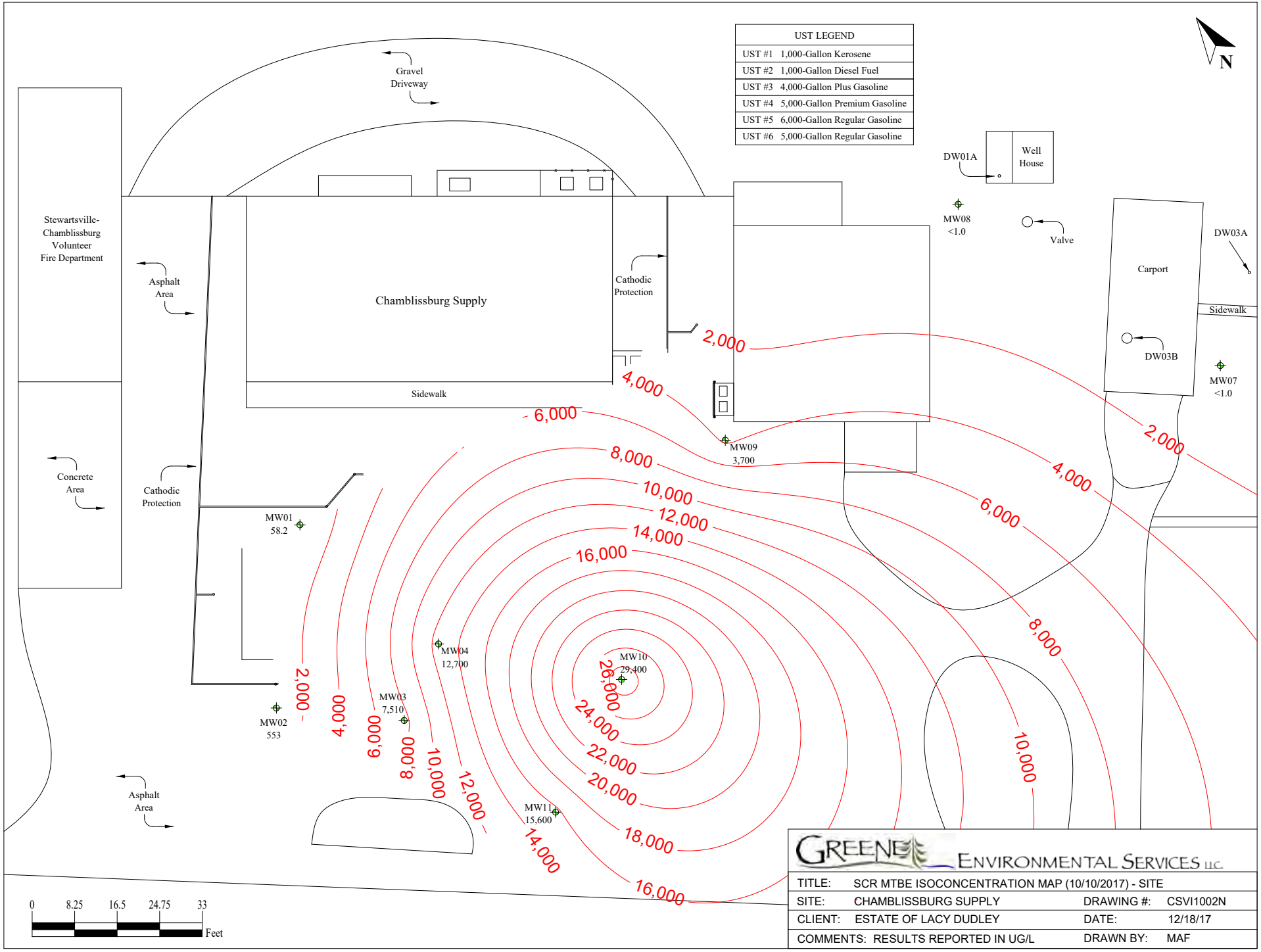
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
DW01A
Well House
MW08 <0.5
Valve
Carport
DW03A
Sidewalk
DW03B
MW07 <0.5
Grassy Area
Concrete Area
MW09 293
Concrete Area
Cathodic Protection
MW01 <0.5
2,000
4,000
14,000
12,000
10,000
8,000
6,000
MW04 18,500
MW10 3,860
MW02 25.8
MW03 6,950
MW11 2,370
Asphalt Area
Sidewalk
Gravel Area
Grassy Area
Grassy Area
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR BENZENE ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002I
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

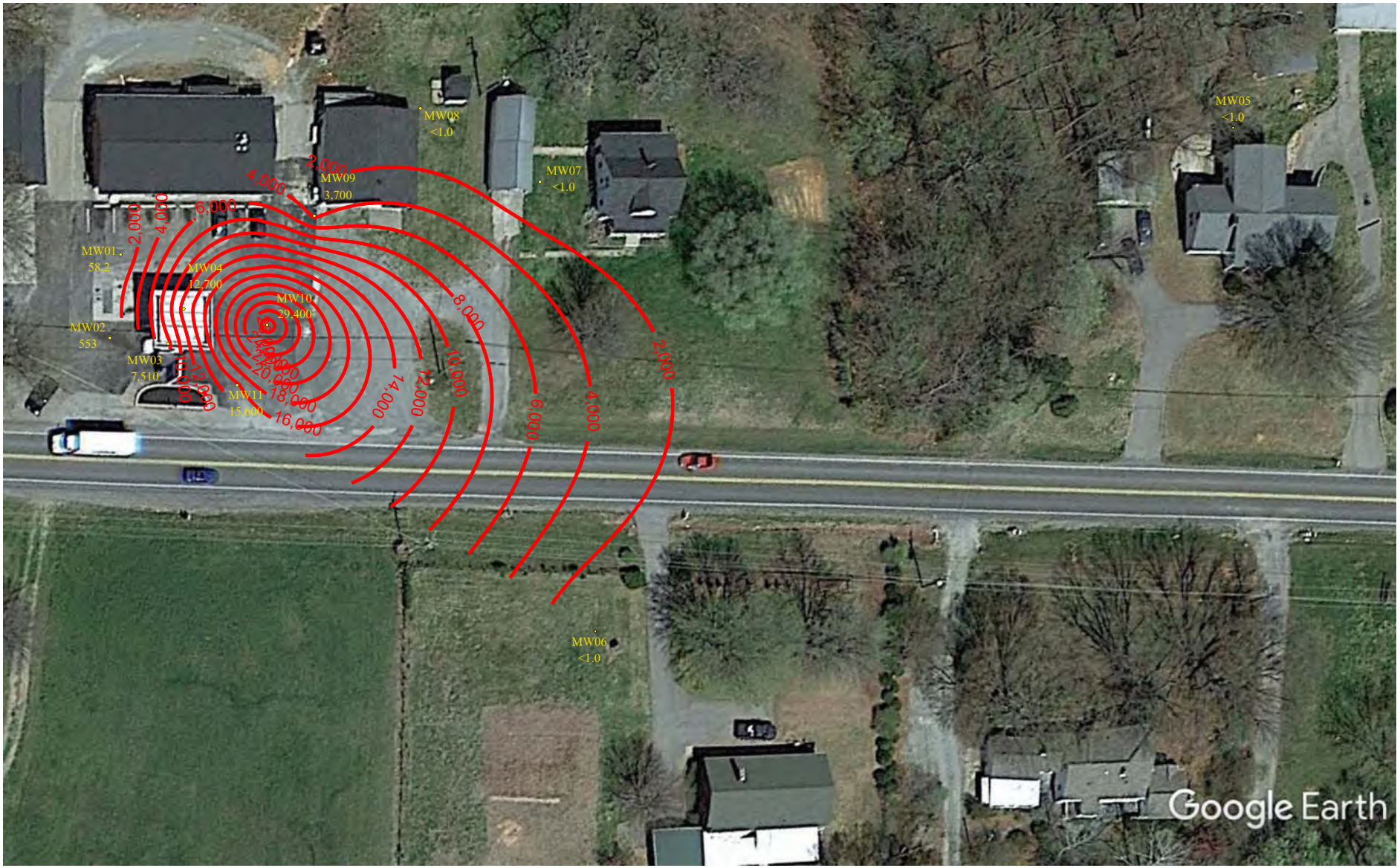

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
DW01A
Well House
MW08 <0.5
Valve
DW03A
Carport
Sidewalk
DW03B
MW07 <0.5
Grassy Area
Concrete Area
MW09 711
Concrete Area
Cathodic Protection
MW01 0.900
5,000
10,000
15,000
40,000
35,000
30,000
25,000
20,000
MW04 53,700
MW10 2,490
MW02 157
MW03 29,900
Asphalt Area
MW11 1,060
Sidewalk
Gravel Area
Grassy Area
Grassy Area
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR TOLUENE ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002J
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
Grassy Area
Carport
Sidewalk
DW01A
Well House
MW08 <0.5
Valve
DW03A
DW03B
MW07 <0.5
MW09 150
Concrete Area
Cathodic Protection
MW01 0.820
MW04 3,880
MW03 3,790
MW02 20.1
MW10 441
MW11 425
500
1,000
1,500
2,000
2,500
3,000
3,500
Gravel Area
Grassy Area
Asphalt Area
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR ETHYLBENZENE ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002K
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
Grassy Area
Carport
Sidewalk
DW01A
Well House
MW08 <0.5
Valve
DW03A
DW03B
MW07 <0.5
MW09 455
Concrete Area
Cathodic Protection
MW01 5.19
MW02 534.5
MW03 18,400
MW04 18,300
MW10 6,470
MW11 1,998.6
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
Asphalt Area
Gravel Area
Grassy Area
Grassy Area
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR XYLENES ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002L
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
Grassy Area
DW01A
Well House
MW08 ND
Valve
DW03A
Carport
Sidewalk
DW03B
MW07 ND
Concrete Area
MW09 1,609
Concrete Area
Cathodic Protection
MW01 6.91
10,000
20,000
30,000
70,000
60,000
50,000
40,000
20,000
30,000
10,000
MW04 94,380
MW10 13,261
MW03 59,040
MW02 737.4
MW11 5,853.6
Sidewalk
Gravel Area
Grassy Area
Grassy Area
Asphalt Area
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR TOTAL BTEX ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002M
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

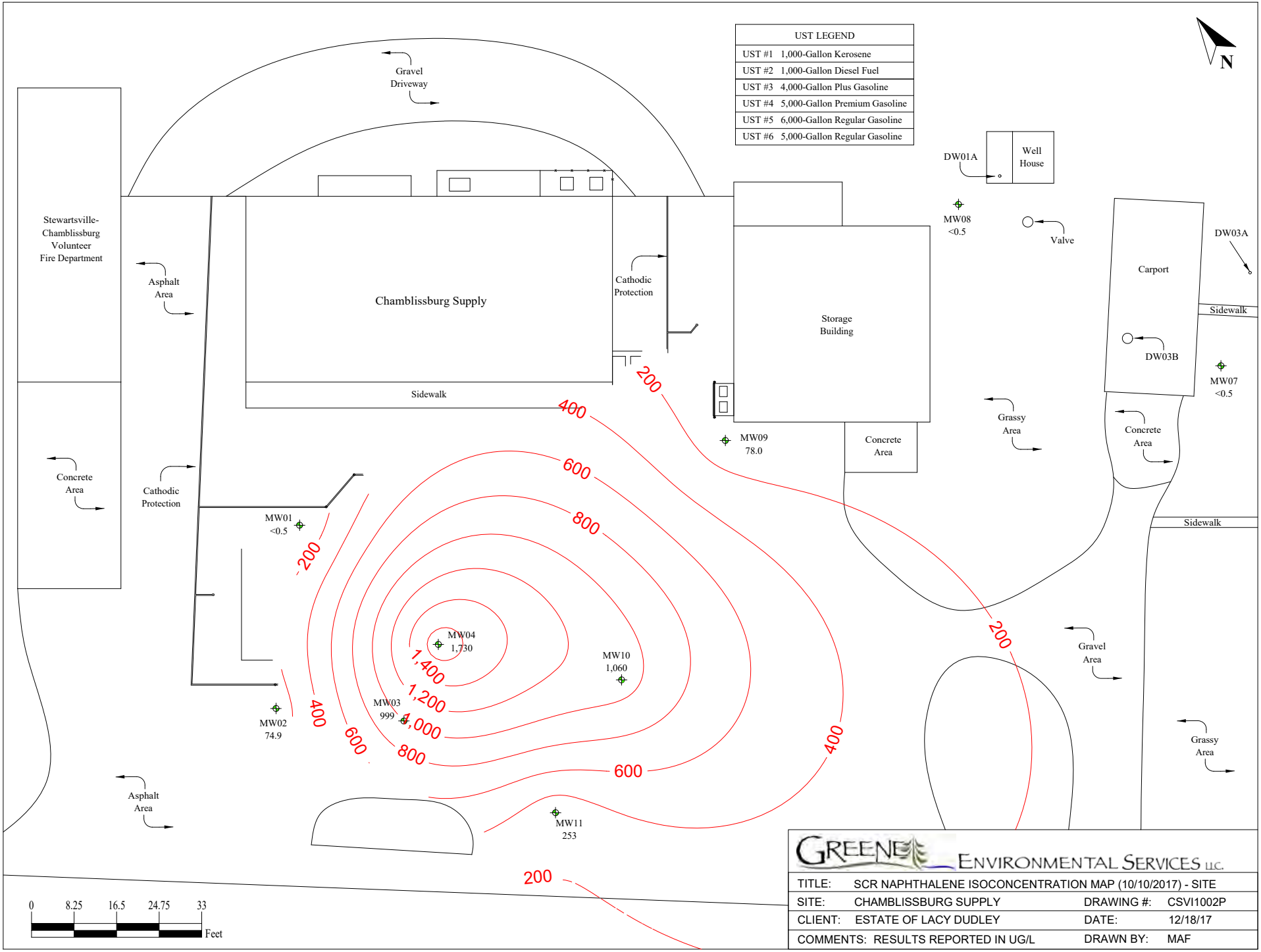

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
DW01A
Well House
MW08 <1.0
Valve
DW03A
Carport
Sidewalk
DW03B
MW07 <1.0
MW09 3,700
Concrete Area
Cathodic Protection
MW01 58.2
MW02 553
MW03 7,510
MW04 12,700
MW10 29,400
MW11 15,600
Asphalt Area
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
20,000
22,000
24,000
26,000
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR MTBE ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002N
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

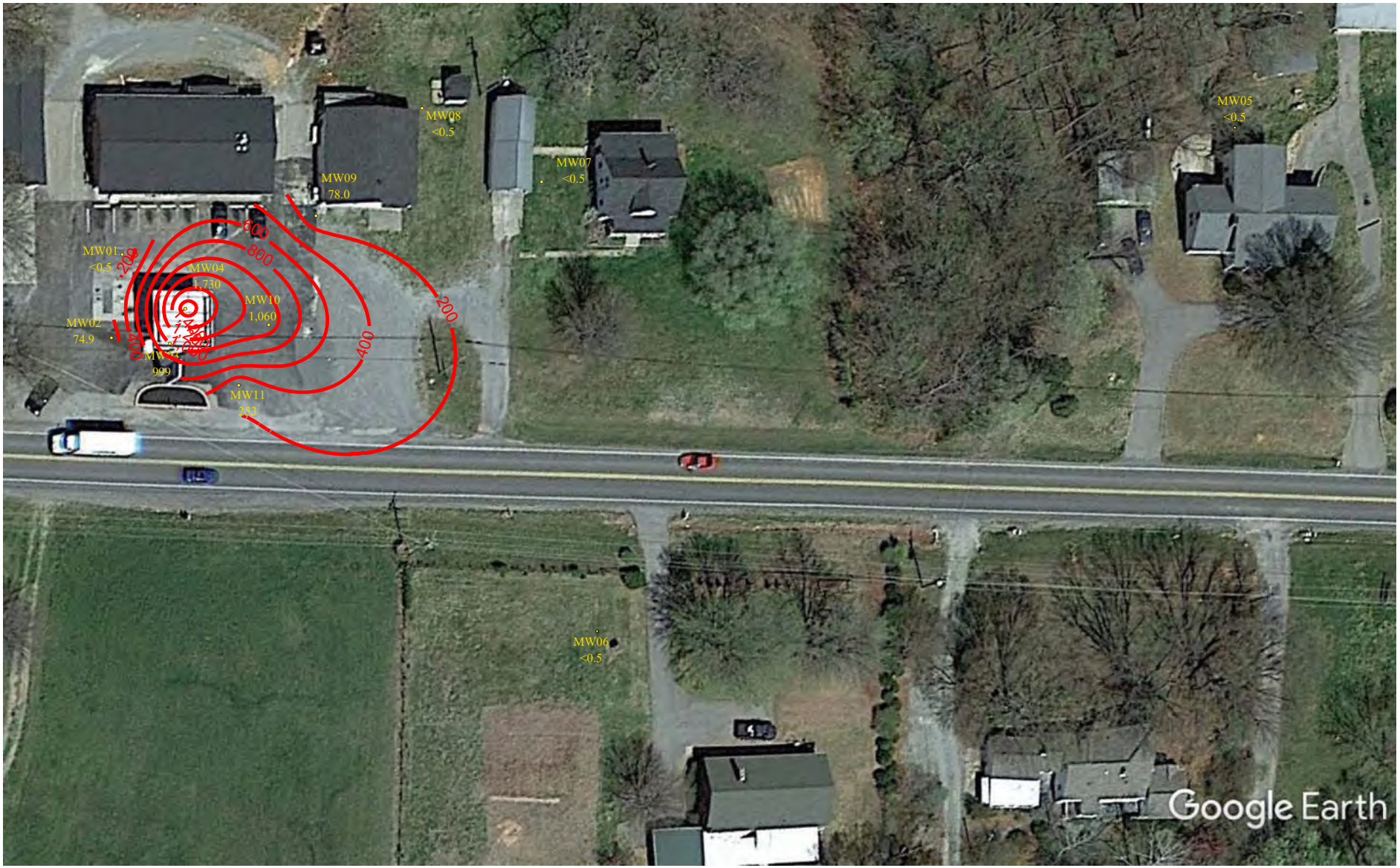


0 26.5 53 79.5 106 Feet

GREENE ENVIRONMENTAL SERVICES LLC.

TITLE:	SCR MTBE ISOCONCENTRATION MAP (10/10/2017) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1002O
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:		DRAWN BY:	MAF

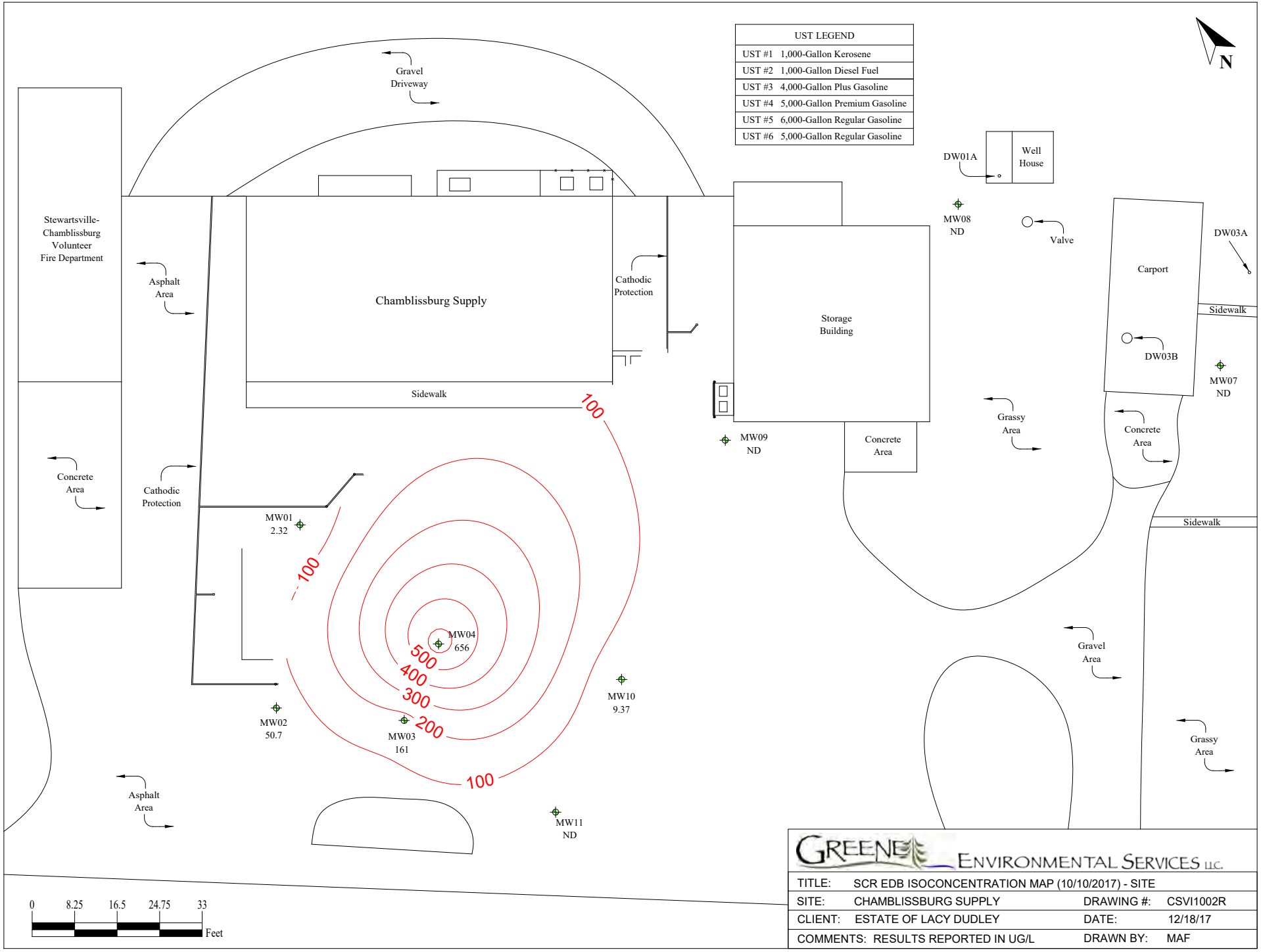

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
DW01A
Well House
MW08 <0.5
Valve
Carport
DW03A
Sidewalk
DW03B
MW07 <0.5
Grassy Area
Concrete Area
MW09 78.0
Concrete Area
Cathodic Protection
MW01 <0.5
200
400
600
800
1,400
1,200
4,000
MW04 1,730
MW10 1,060
MW03 999
MW02 74.9
Sidewalk
Gravel Area
Grassy Area
Asphalt Area
MW11 253
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR NAPHTHALENE ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002P
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

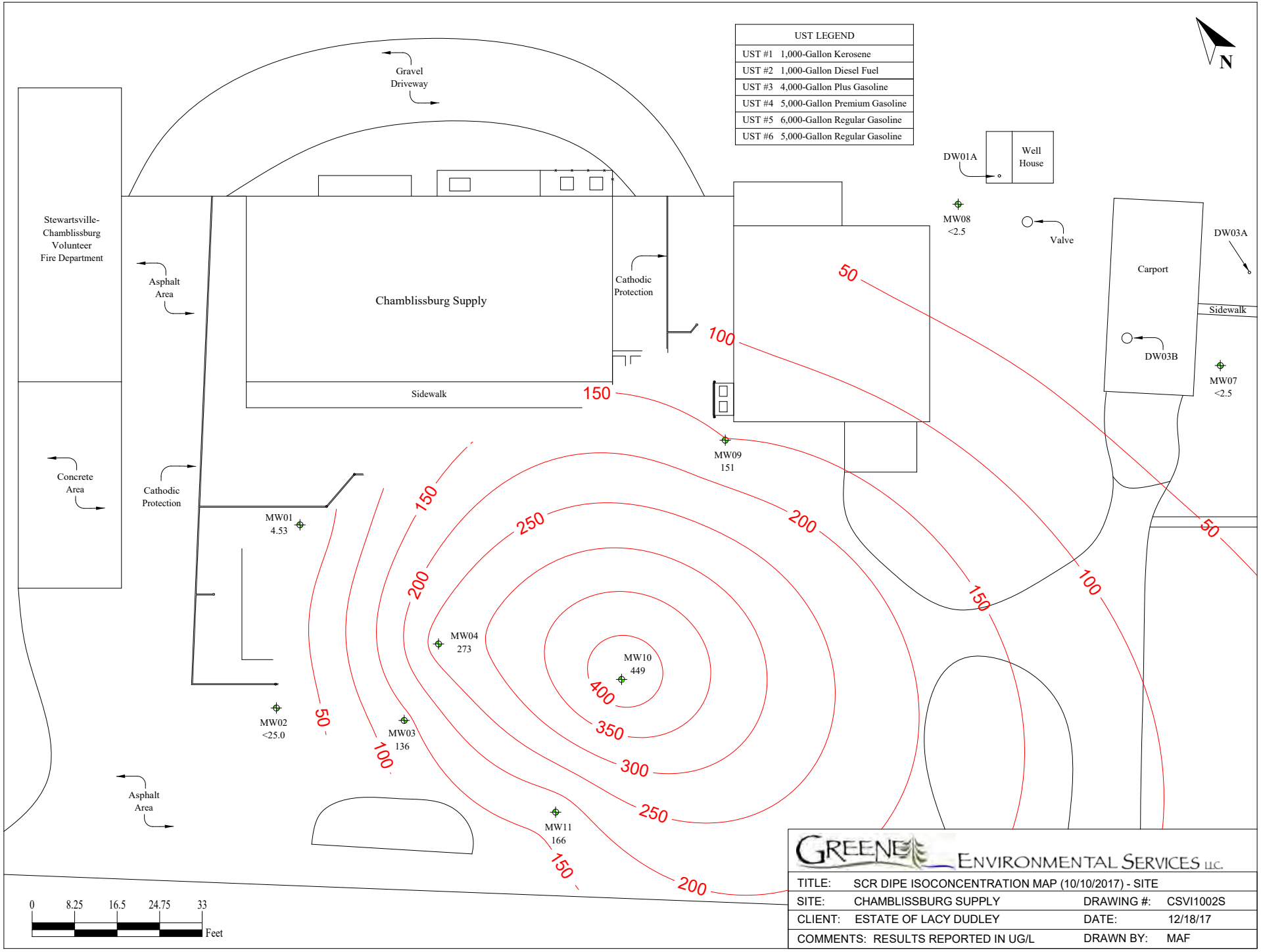


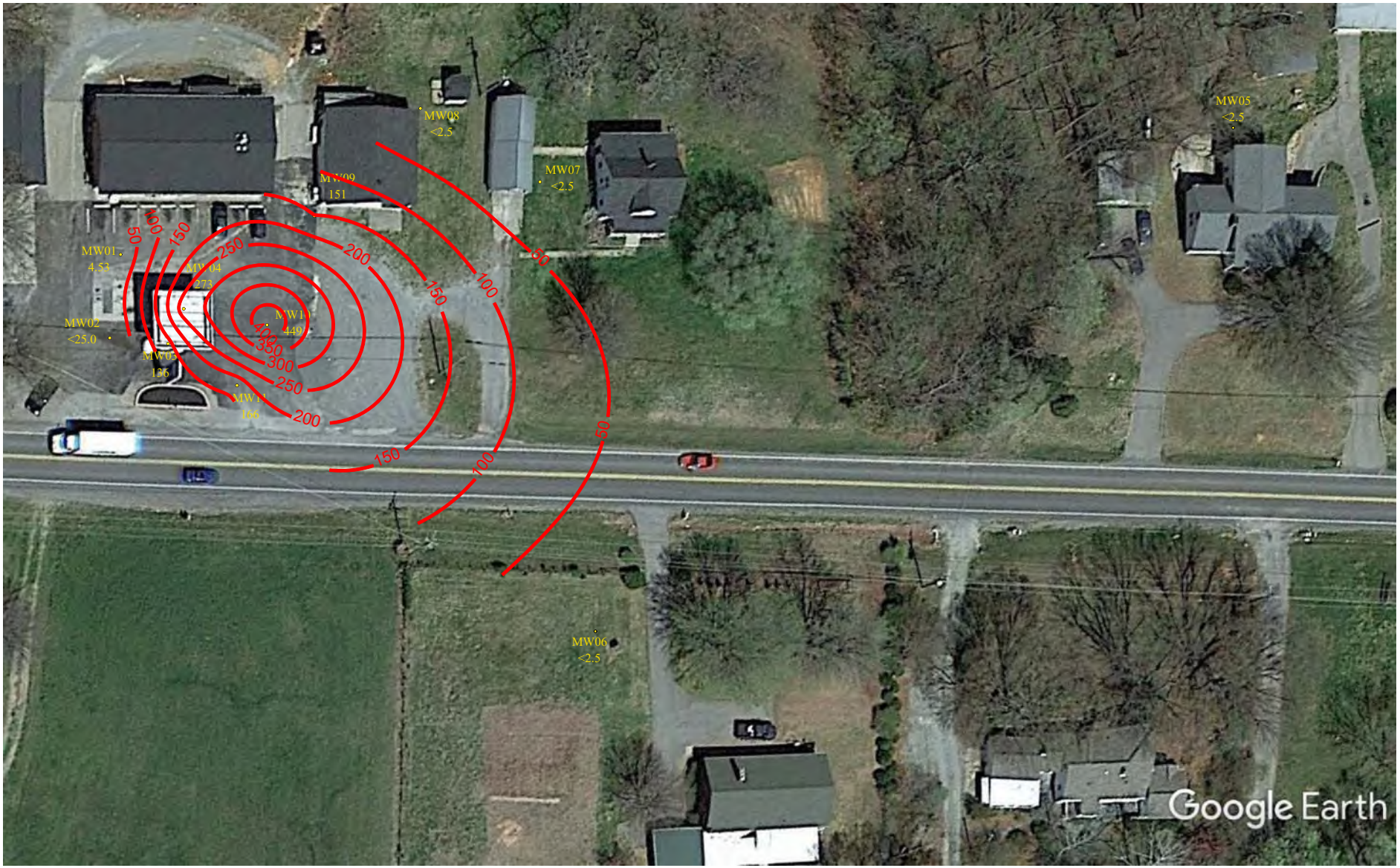
0 26.5 53 79.5 106 Feet

GREENE ENVIRONMENTAL SERVICES LLC.

TITLE:	SCR NAPHTHALENE ISOCONCENTRATION MAP (10/10/2017) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1002Q
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:		DRAWN BY:	MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
Grassy Area
Carport
Sidewalk
DW01A
Well House
MW08 ND
Valve
DW03A
DW03B
MW07 ND
MW09 ND
Concrete Area
Cathodic Protection
MW01 2.32
MW04 656
MW10 9.37
MW02 50.7
MW03 161
MW11 ND
Asphalt Area
Gravel Area
Grassy Area
Sidewalk
100
100
500
400
300
200
100
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR EDB ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002R
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

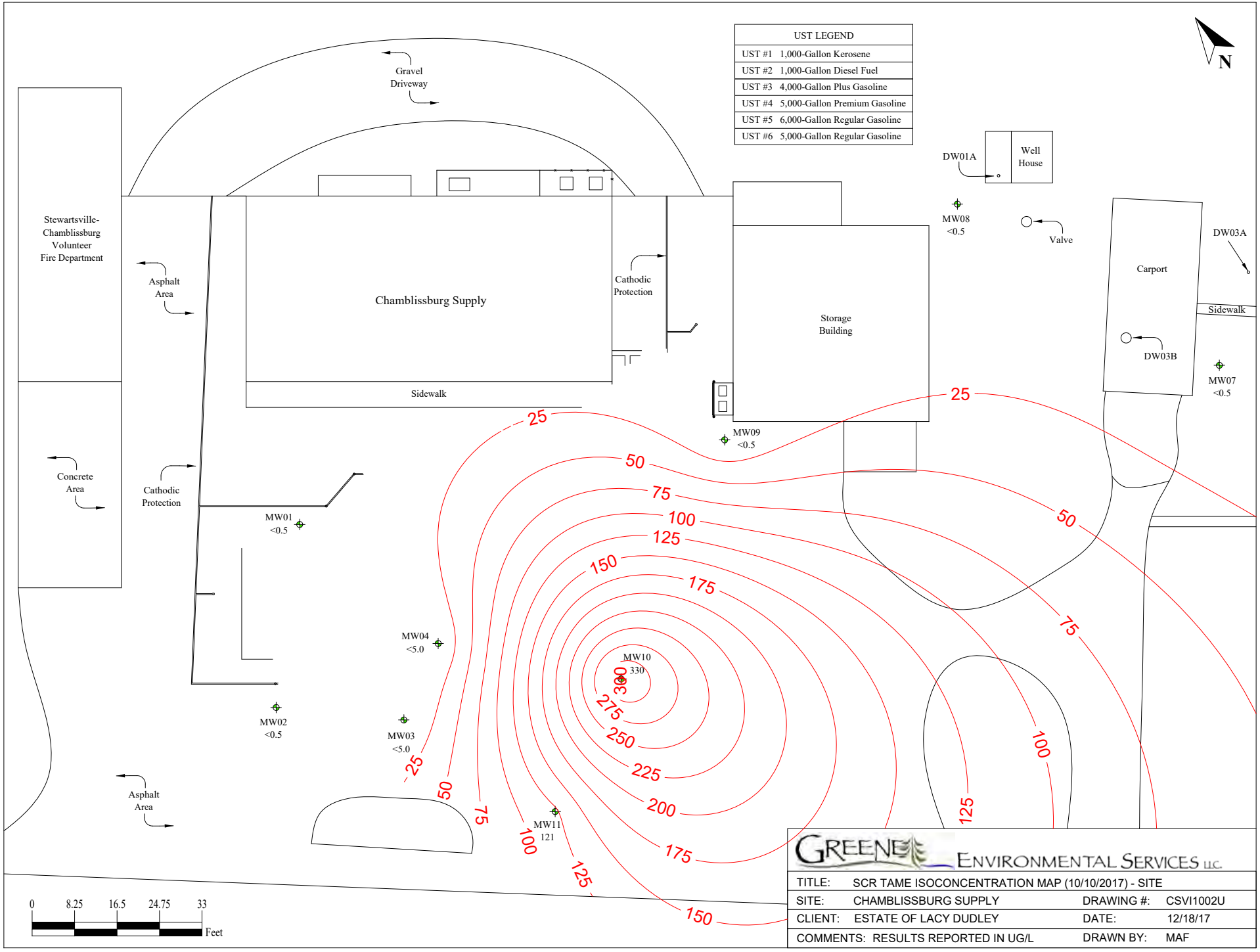

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
DW01A
Well House
MW08 <2.5
Valve
Carport
DW03A
Sidewalk
DW03B
MW07 <2.5
MW09 151
Concrete Area
Cathodic Protection
MW01 4.53
MW04 273
MW10 449
MW02 <25.0
MW03 136
MW11 166
Asphalt Area
50
100
150
200
250
300
350
400
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR DIPE ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002S
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

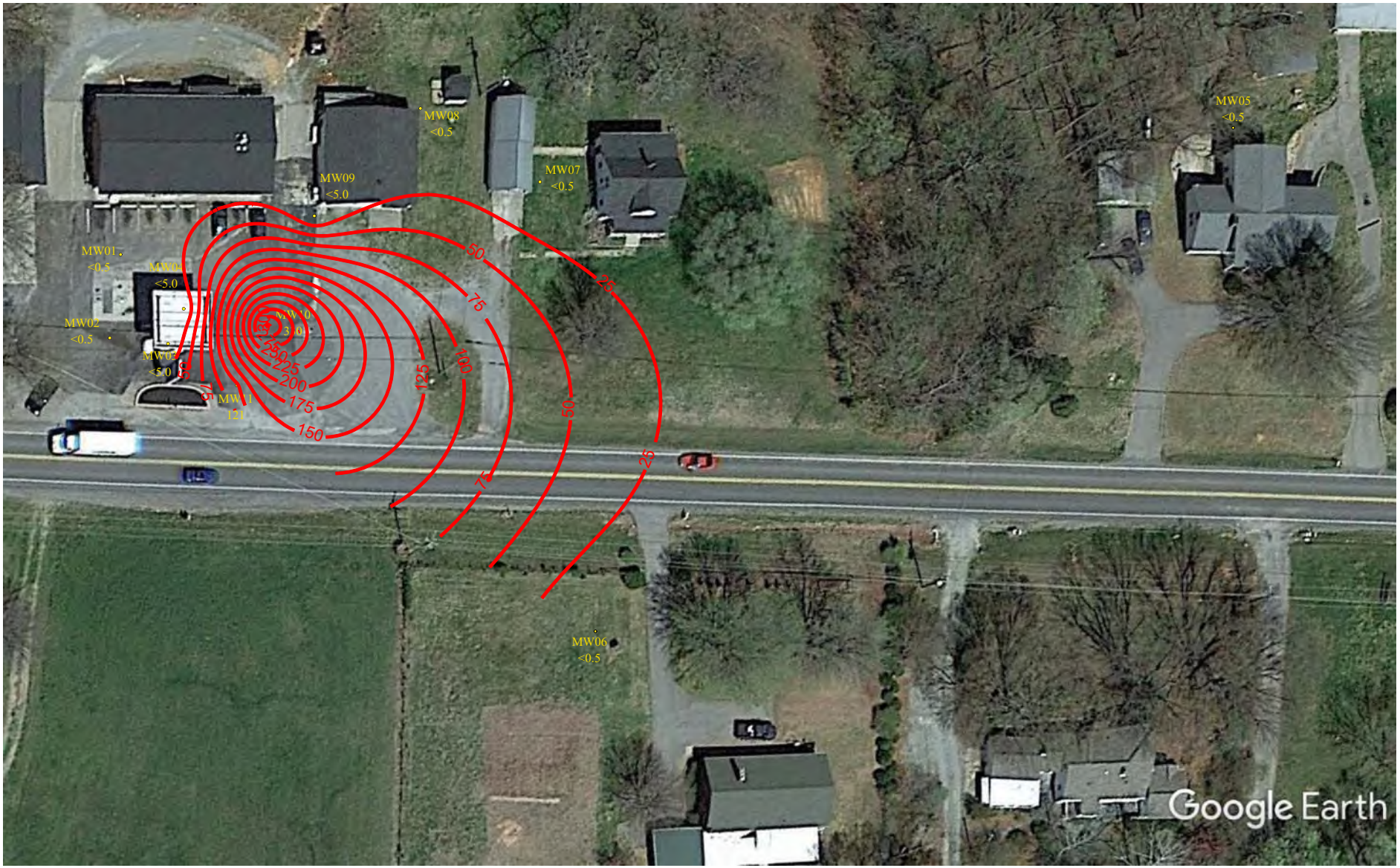


0 26.5 53 79.5 106
Feet

GREENE ENVIRONMENTAL SERVICES LLC.

TITLE:	SCR DIPE ISOCONCENTRATION MAP (10/10/2017) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1002T
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:		DRAWN BY:	MAF

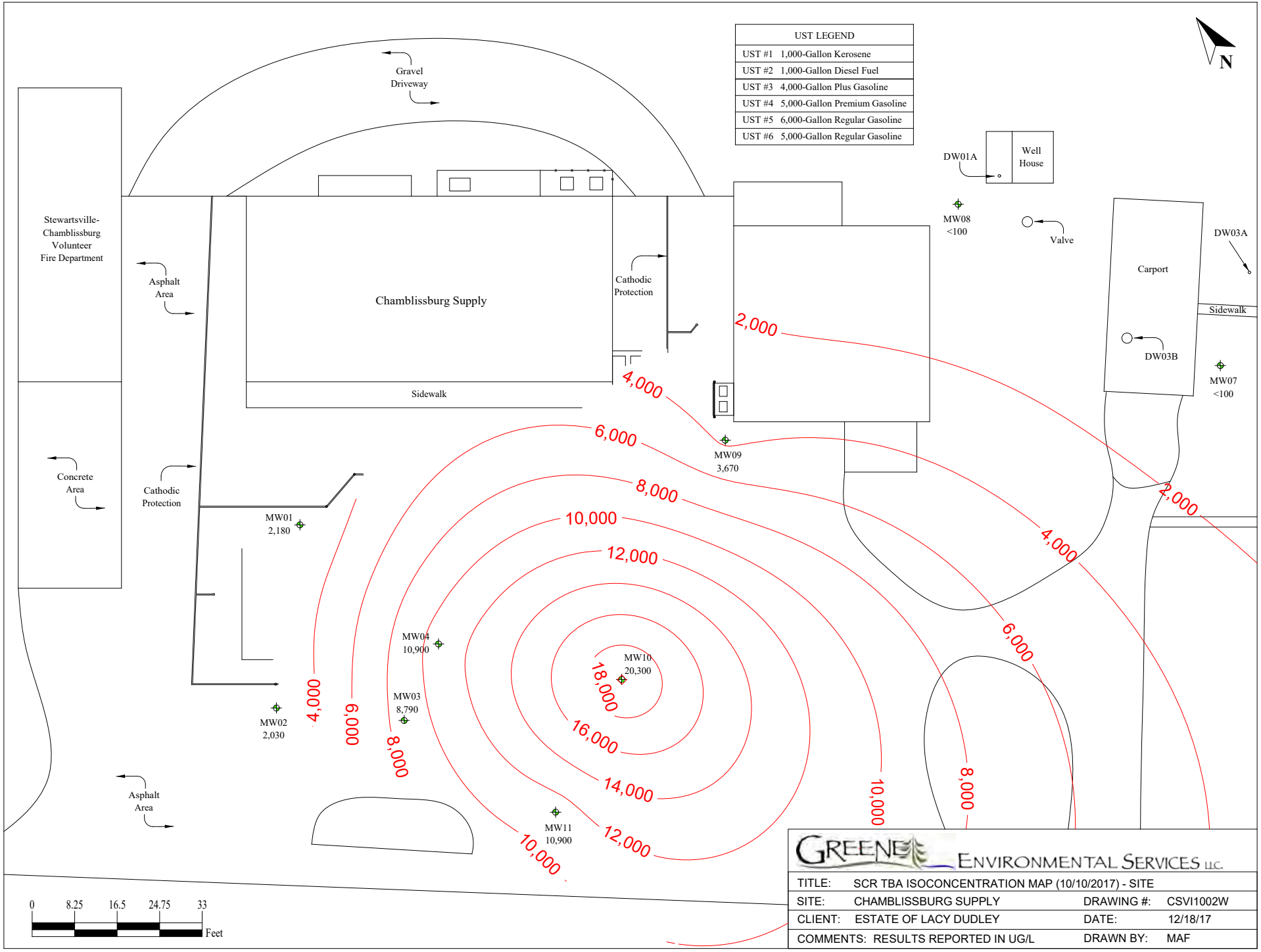

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
DW01A
Well House
MW08 <0.5
Valve
Carport
DW03A
Sidewalk
DW03B
MW07 <0.5
MW09 <0.5
Concrete Area
Cathodic Protection
MW01 <0.5
MW04 <5.0
MW10 330
MW02 <0.5
MW03 <5.0
MW11 121
Asphalt Area
25
50
75
100
125
150
175
200
225
250
275
300
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR TAME ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002U
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

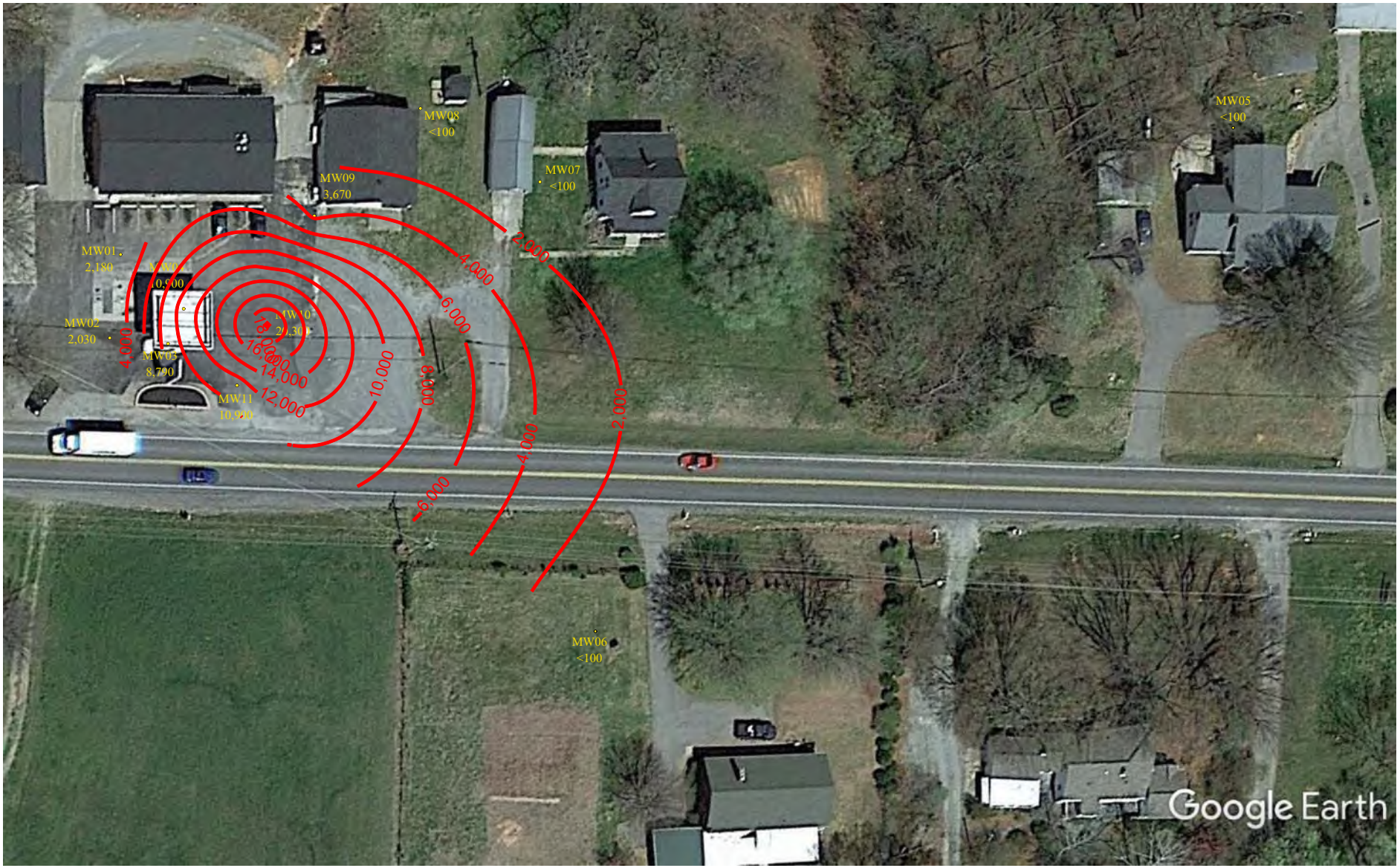


0 26.5 53 79.5 106
Feet

GREENE ENVIRONMENTAL SERVICES LLC.

TITLE:	SCR TAME ISOCONCENTRATION MAP (10/10/2017) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1002V
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:		DRAWN BY:	MAF

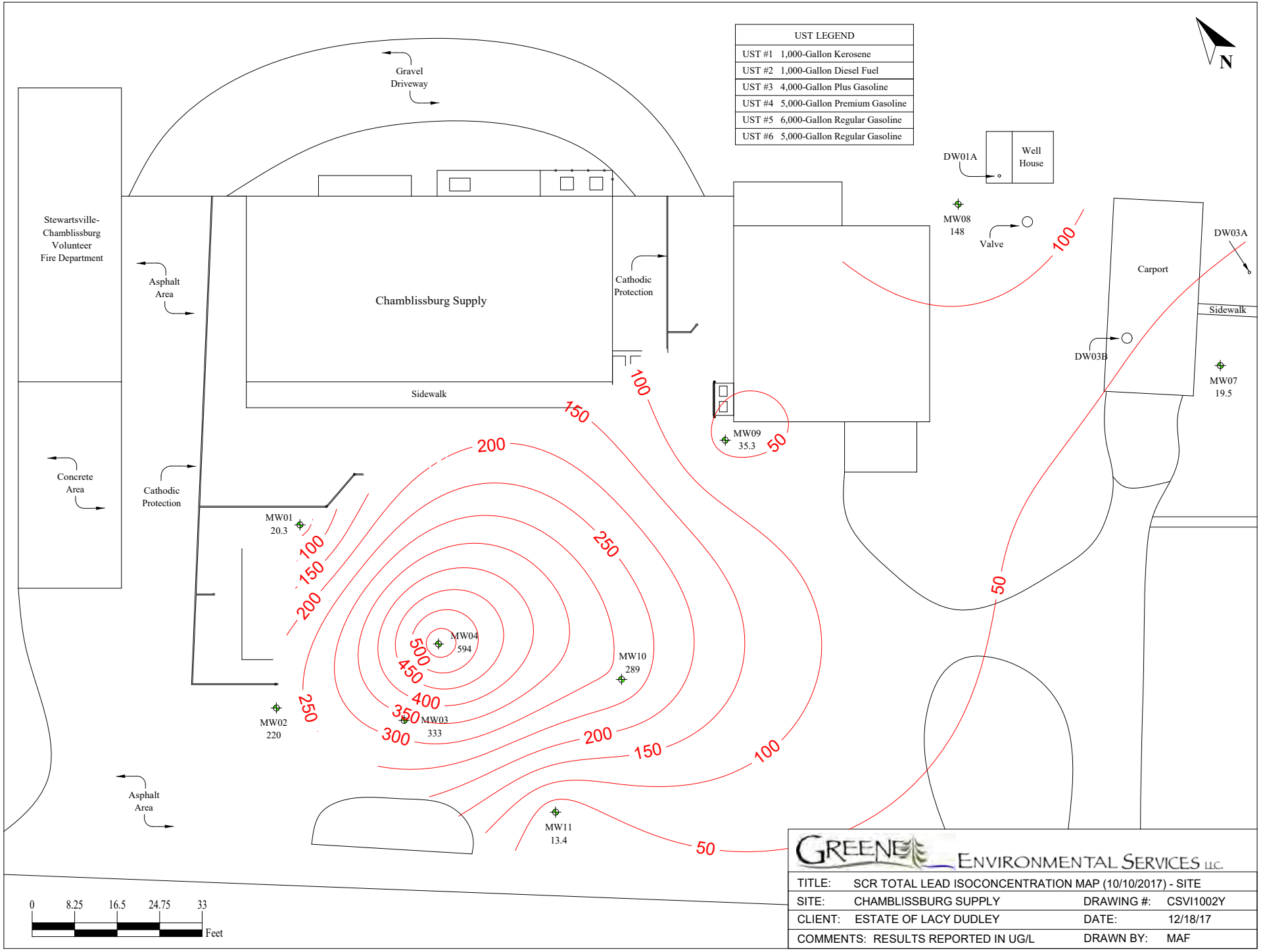

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
DW01A
Well House
MW08 <100
Valve
DW03A
Carport
Sidewalk
DW03B
MW07 <100
MW09 3,670
Concrete Area
Cathodic Protection
MW01 2,180
MW04 10,900
MW10 20,300
MW03 8,790
MW02 2,030
MW11 10,900
Asphalt Area
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES LLC.
TITLE: SCR TBA ISOCONCENTRATION MAP (10/10/2017) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1002W
CLIENT: ESTATE OF LACY DUDLEY
DATE: 12/18/17
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF



0 26.5 53 79.5 106 Feet

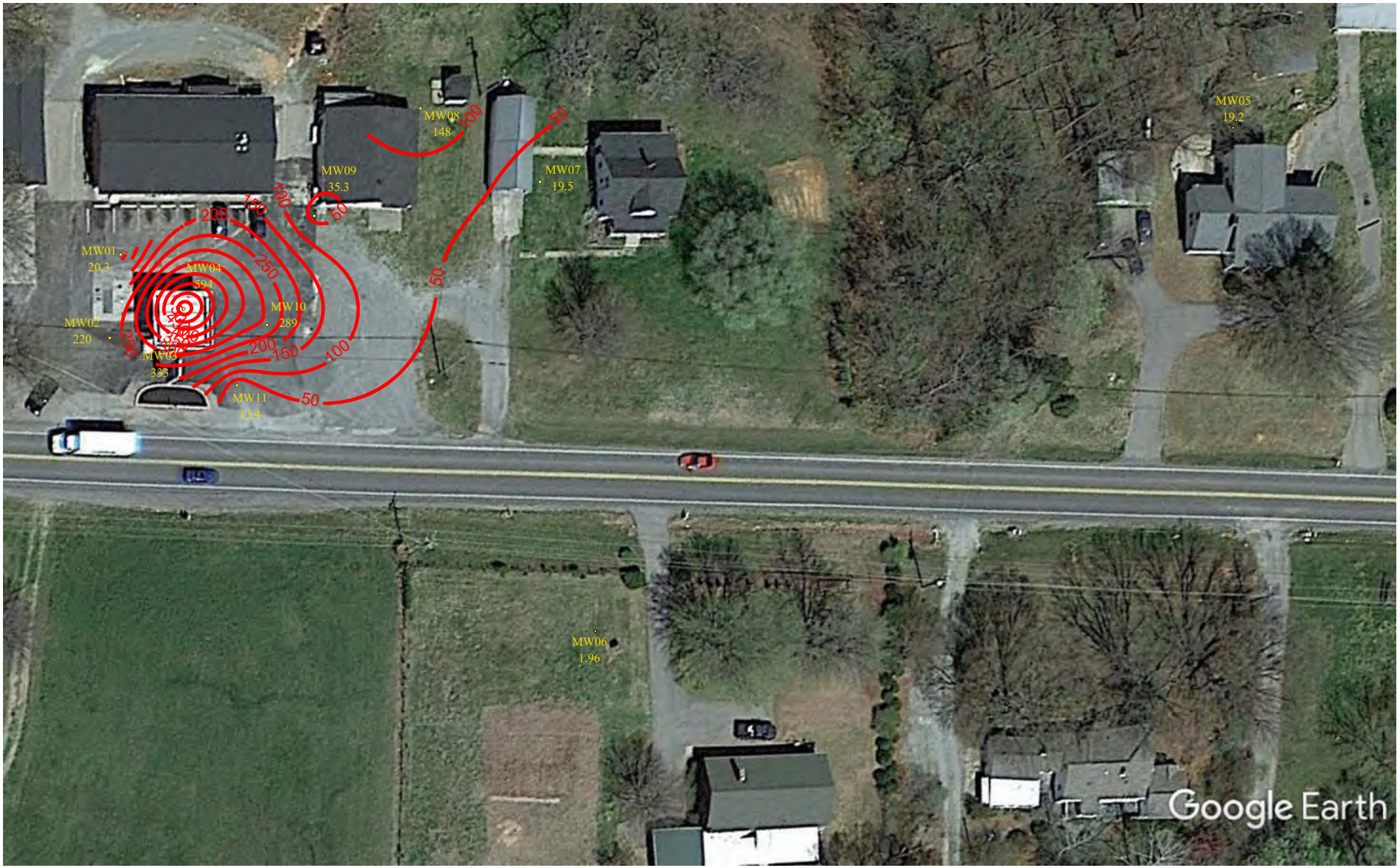
GREENE ENVIRONMENTAL SERVICES LLC.

TITLE:	SCR TBA ISOCONCENTRATION MAP (10/10/2017) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1002X
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:		DRAWN BY:	MAF



GREENE ENVIRONMENTAL SERVICES LLC.

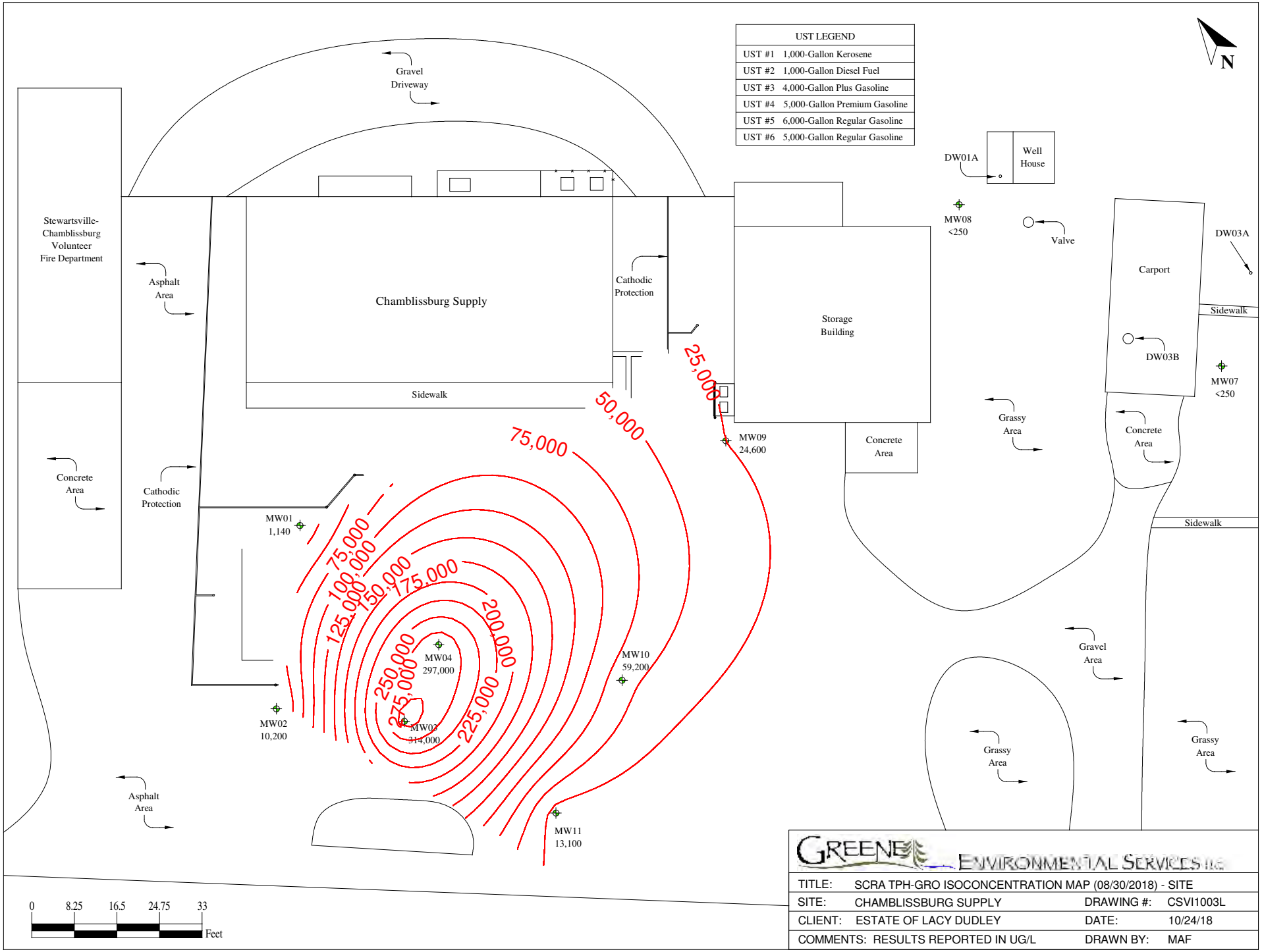
TITLE:	SCR TOTAL LEAD ISOCONCENTRATION MAP (10/10/2017) - SITE		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1002Y
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:	RESULTS REPORTED IN UG/L	DRAWN BY:	MAF

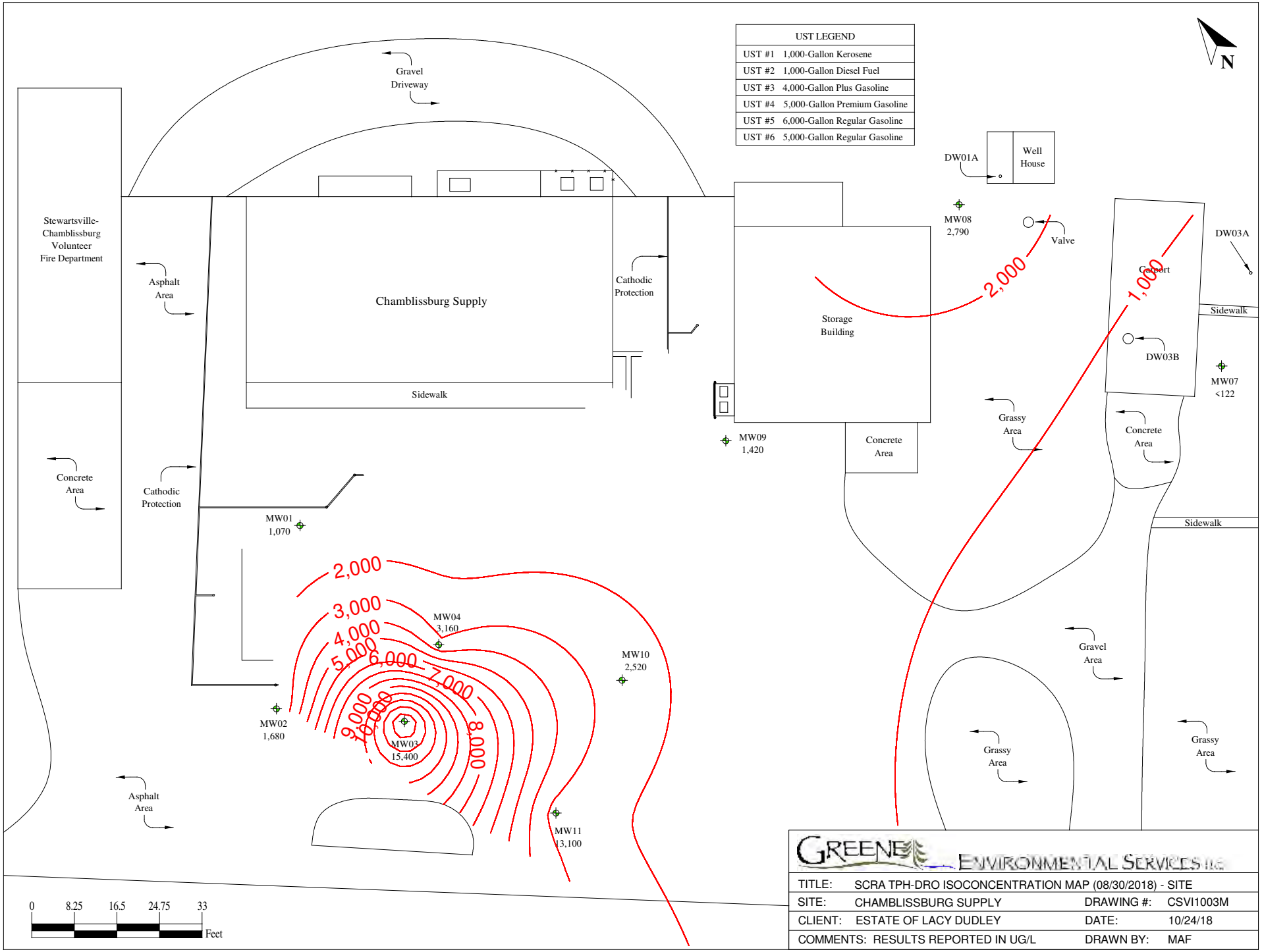


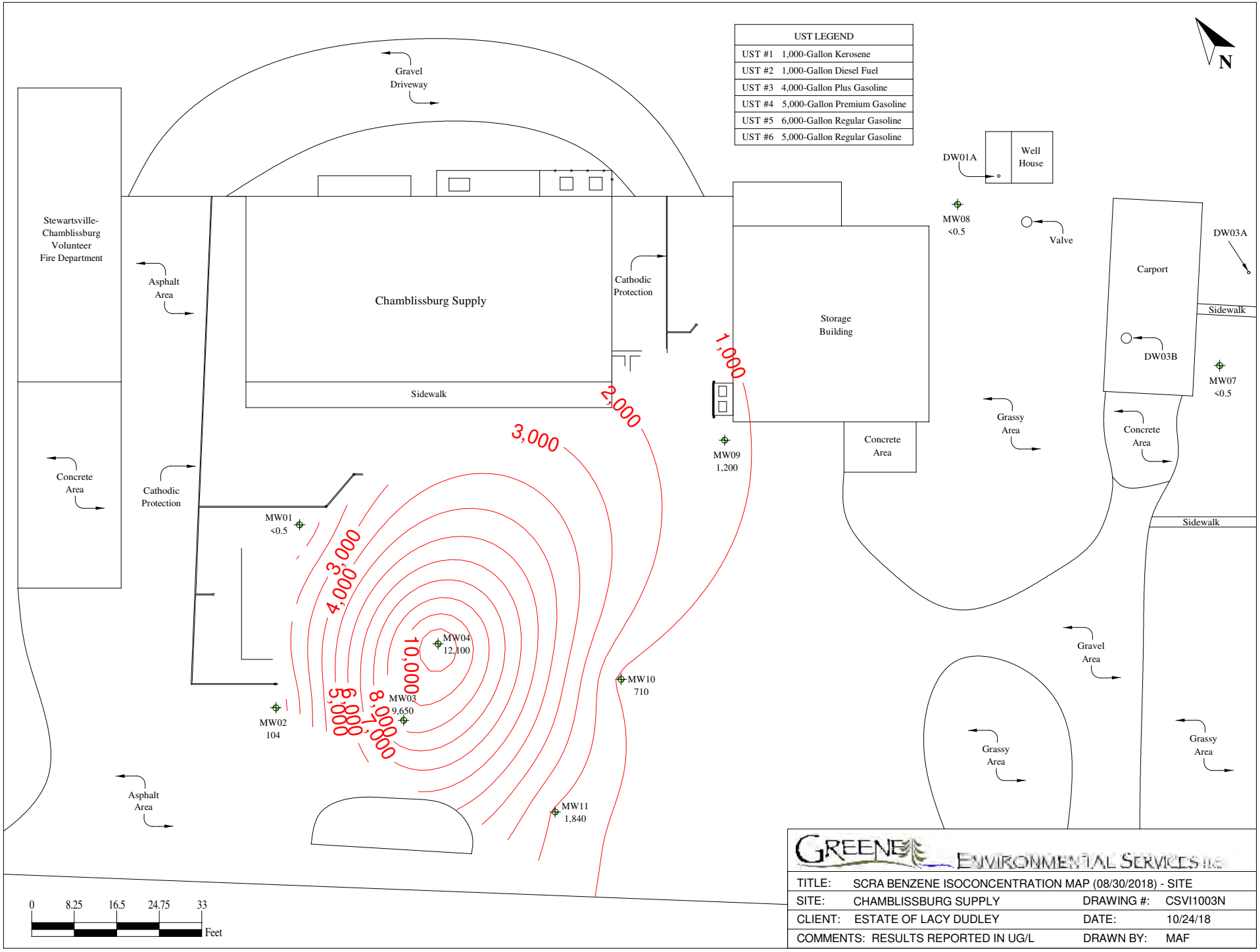
0 26.5 53 79.5 106 Feet

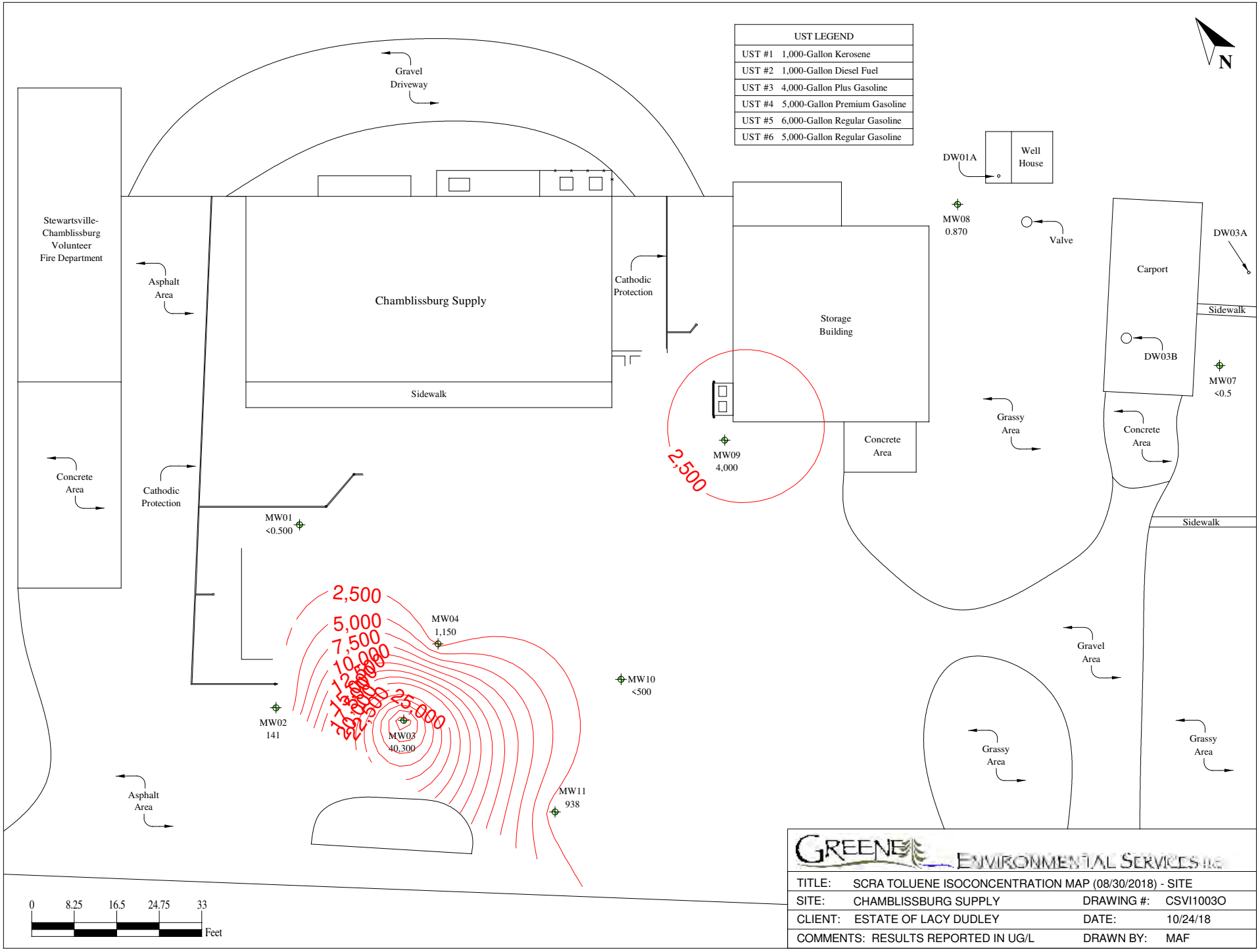
GREENE ENVIRONMENTAL SERVICES LLC.

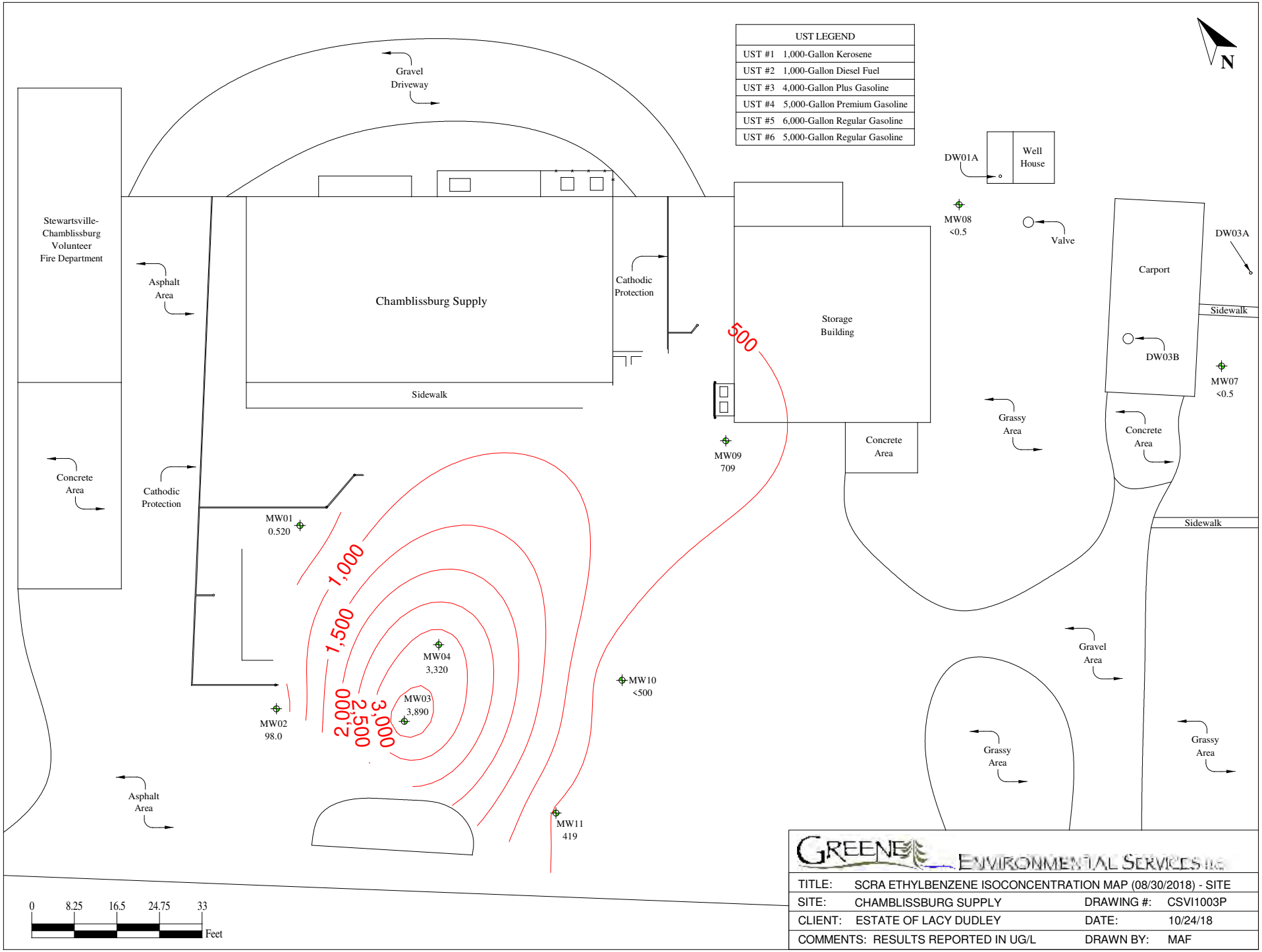
TITLE:	SCR TOTAL LEAD ISOCONCENTRATION MAP (10/10/2017) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1002Z
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:		DRAWN BY:	MAF

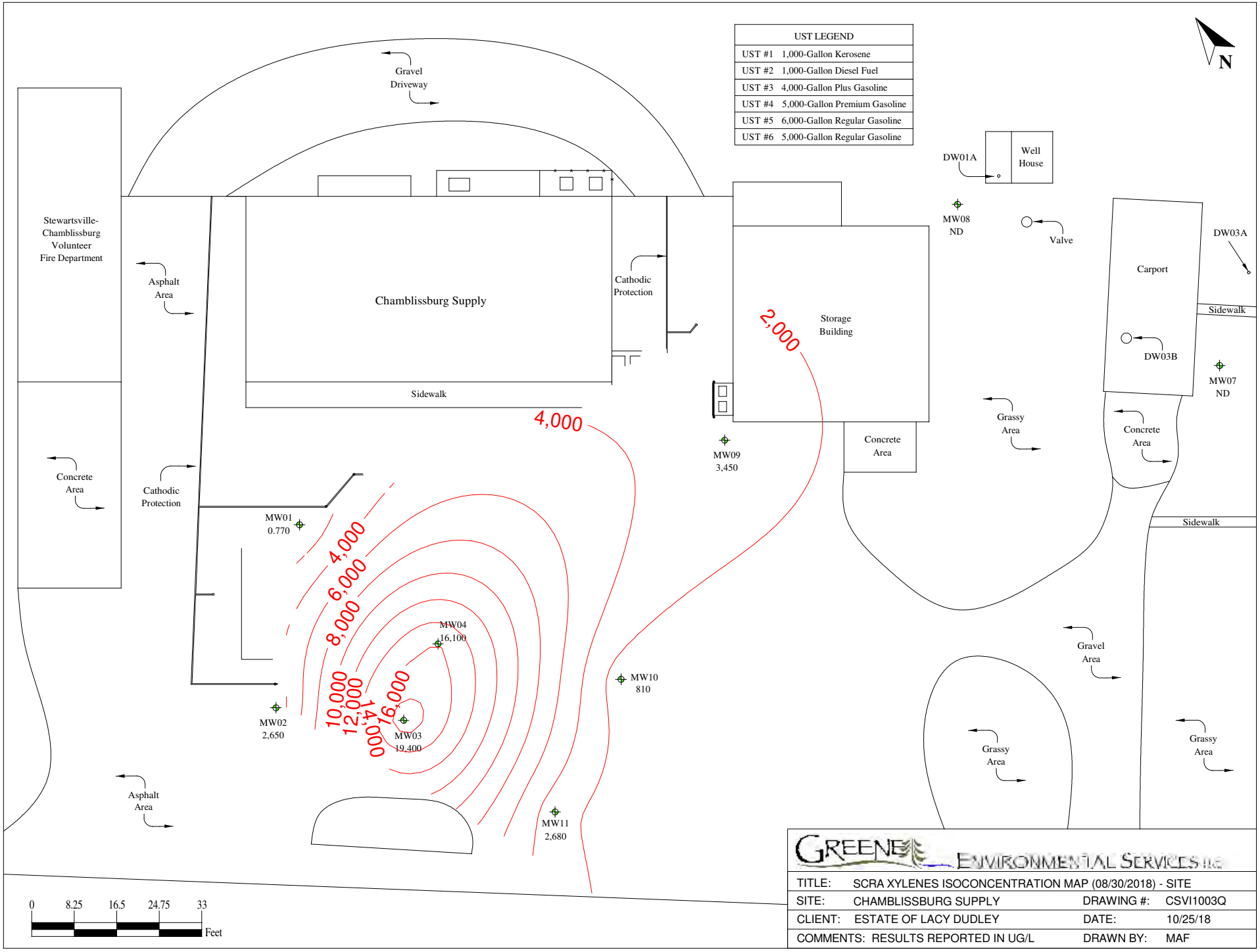

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Storage Building
Sidewalk
Concrete Area
Cathodic Protection
Concrete Area
DW01A
Well House
MW08 <250
Valve
Carport
DW03A
Sidewalk
DW03B
MW07 <250
Grassy Area
Concrete Area
MW09 24,600
25,000
50,000
75,000
MW01 1,140
75,000
100,000
125,000
150,000
175,000
200,000
225,000
250,000
275,000
MW04 297,000
MW10 59,200
MW02 10,200
MW03 314,000
MW11 13,100
Asphalt Area
Sidewalk
Gravel Area
Grassy Area
Grassy Area
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA TPH-GRO ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003L
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/24/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

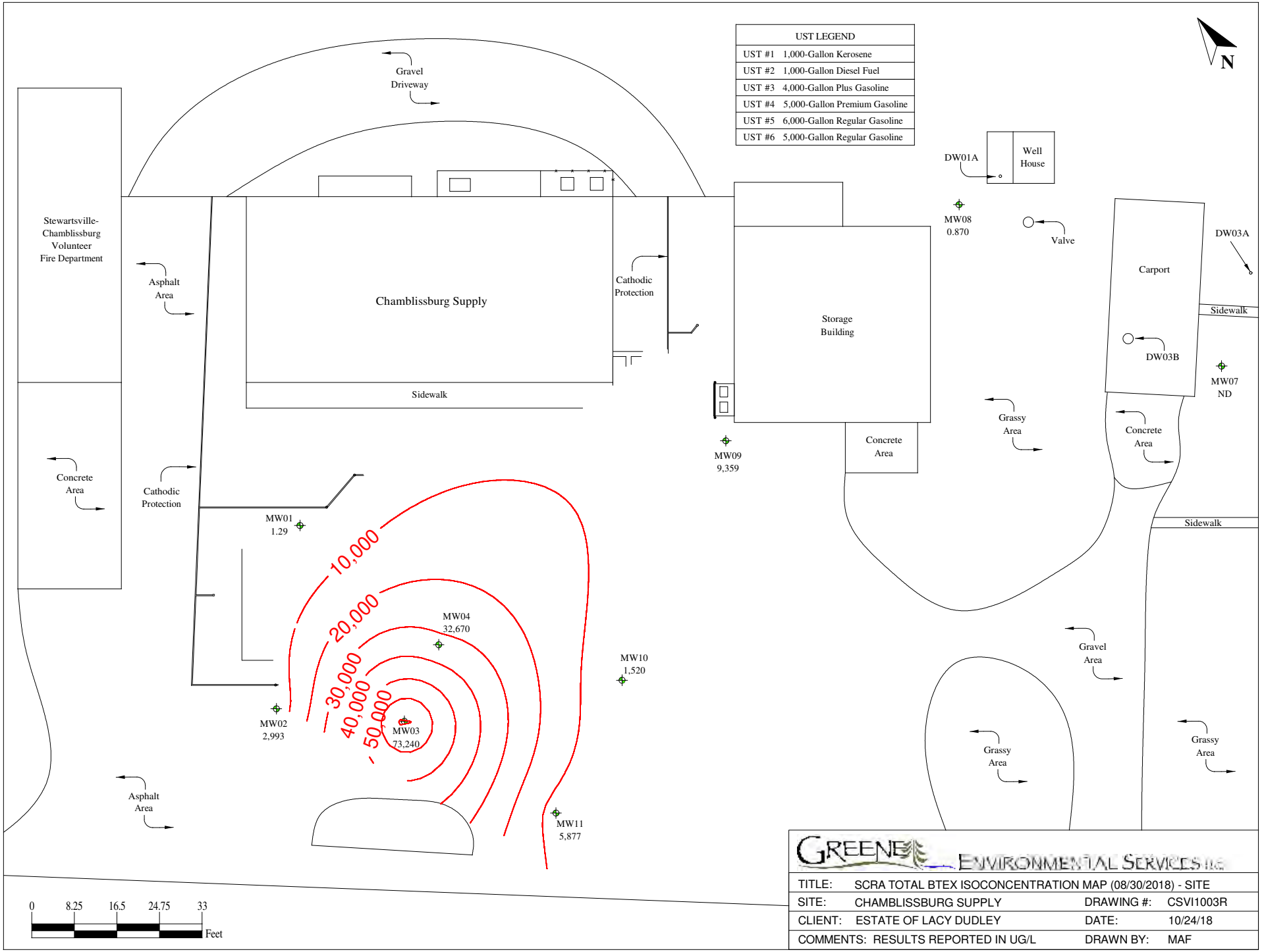

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
Grassy Area
DW01A
Well House
MW08 2,790
Valve
DW03A
Carport
DW03B
MW07 <122
Concrete Area
Sidewalk
MW09 1,420
Concrete Area
Cathodic Protection
MW01 1,070
Sidewalk
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
MW04 3,160
MW10 2,520
MW02 1,680
MW03 15,400
MW11 13,100
Gravel Area
Grassy Area
Grassy Area
Asphalt Area
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA TPH-DRO ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003M
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/24/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

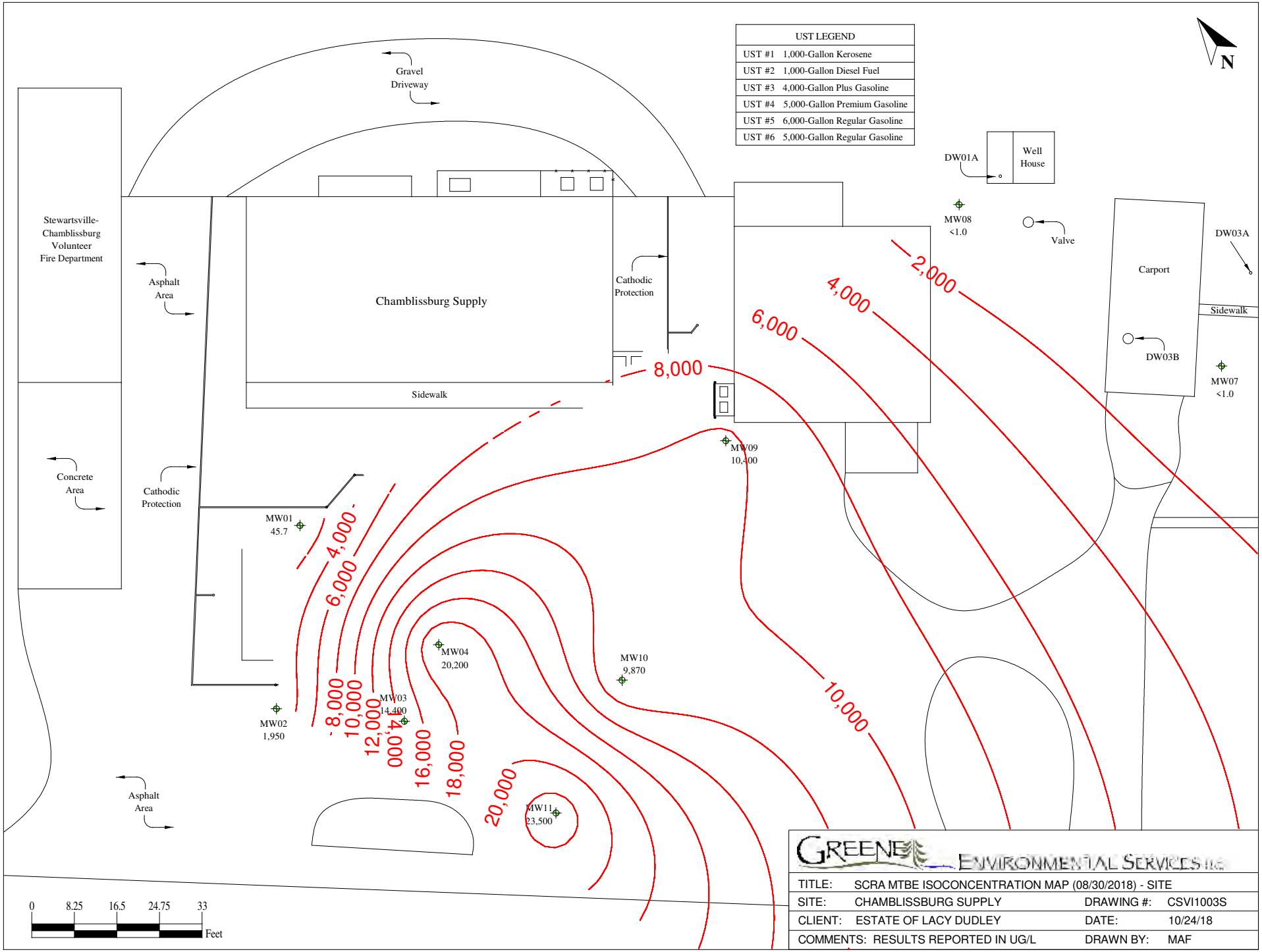

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
DW01A
Well House
MW08 <0.5
Valve
DW03A
Carport
Sidewalk
DW03B
MW07 <0.5
Grassy Area
Concrete Area
MW09 1,200
1,000
2,000
3,000
4,000
3,000
10,000
8,000
7,000
6,000
MW01 <0.5
MW04 12,100
MW03 9,650
MW02 104
MW10 710
MW11 1,840
Gravel Area
Grassy Area
Grassy Area
Asphalt Area
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA BENZENE ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003N
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/24/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

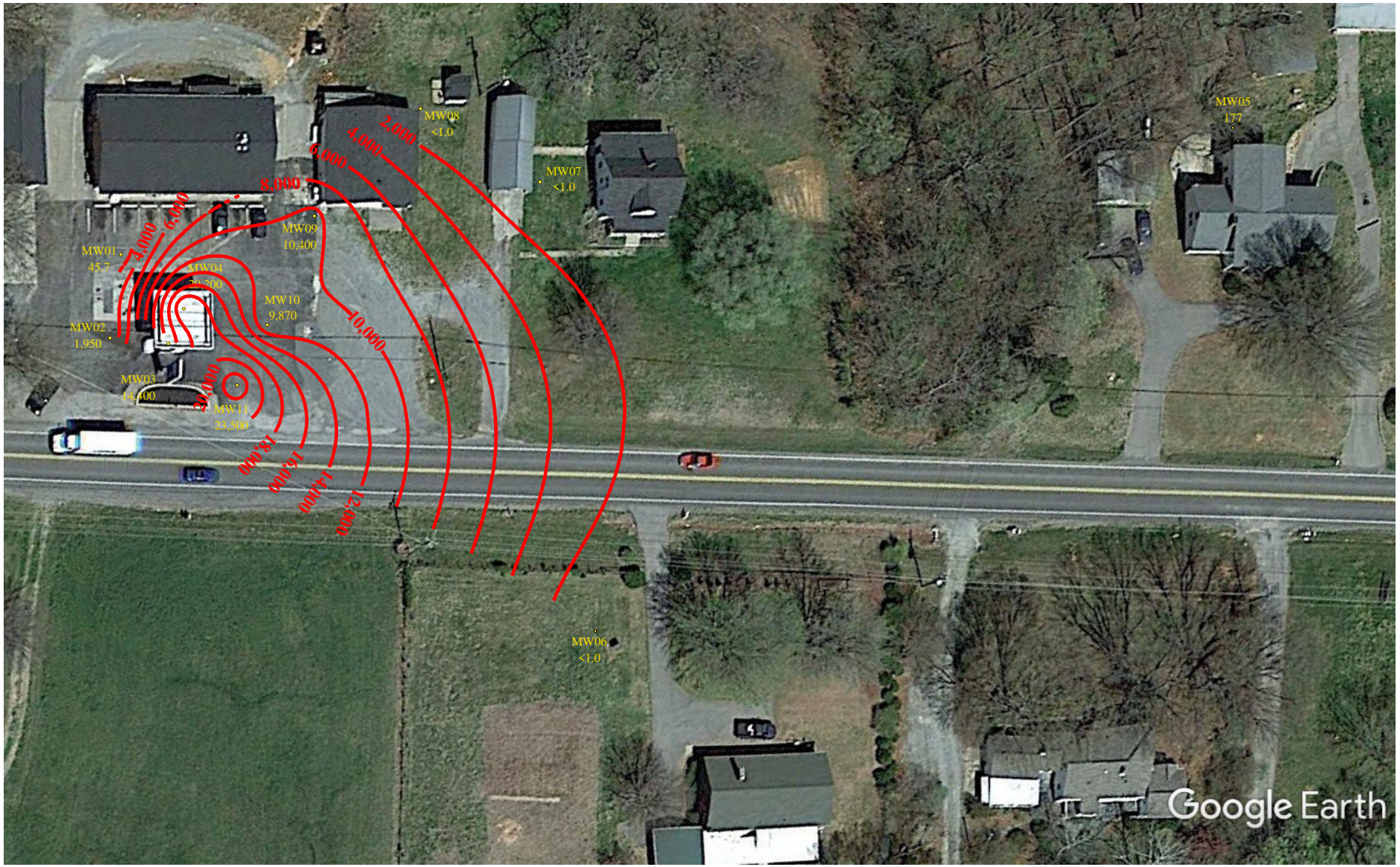

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
DW01A
Well House
MW08 0.870
Valve
Carport
DW03A
DW03B
MW07 <0.5
Concrete Area
Grassy Area
MW09 4,000
2,500
Concrete Area
Cathodic Protection
MW01 <0.500
Sidewalk
2,500
5,000
7,500
10,000
12,500
15,000
17,500
20,000
22,500
25,000
MW04 1,150
MW10 <500
MW02 141
MW03 40,300
Gravel Area
Grassy Area
Grassy Area
Asphalt Area
MW11 938
0
8.25
16.5
24.75
33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA TOLUENE ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003O
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/24/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
Concrete Area
Cathodic Protection
Asphalt Area
DW01A
Well House
MW08 <0.5
Valve
Carport
DW03A
Sidewalk
DW03B
MW07 <0.5
Grassy Area
Concrete Area
Sidewalk
MW09 709
500
1,000
1,500
2,000
2,500
3,000
MW01 0.520
MW04 3,320
MW03 3,890
MW02 98.0
MW10 <500
MW11 419
Gravel Area
Grassy Area
Grassy Area
0
8.25
16.5
24.75
33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA ETHYLBENZENE ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003P
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/24/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
Cathodic Protection
Concrete Area
DW01A
Well House
MW08 ND
Valve
DW03A
Carport
Sidewalk
DW03B
MW07 ND
Grassy Area
Concrete Area
MW09 3,450
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
MW01 0.770
MW04 16,100
MW10 810
MW02 2,650
MW03 19,400
MW11 2,680
Sidewalk
Gravel Area
Grassy Area
Grassy Area
Asphalt Area
0
8.25
16.5
24.75
33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA XYLENES ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003Q
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/25/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
Storage Building
Concrete Area
Grassy Area
DW01A
Well House
MW08
0.870
Valve
Carport
DW03A
Sidewalk
DW03B
MW07
ND
MW09
9,359
Concrete Area
Concrete Area
Cathodic Protection
MW01
1.29
10,000
20,000
30,000
40,000
50,000
MW04
32,670
MW10
1,520
MW02
2,993
MW03
73,240
MW11
5,877
Gravel Area
Grassy Area
Grassy Area
Asphalt Area
0
8.25
16.5
24.75
33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA TOTAL BTEX ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003R
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/24/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

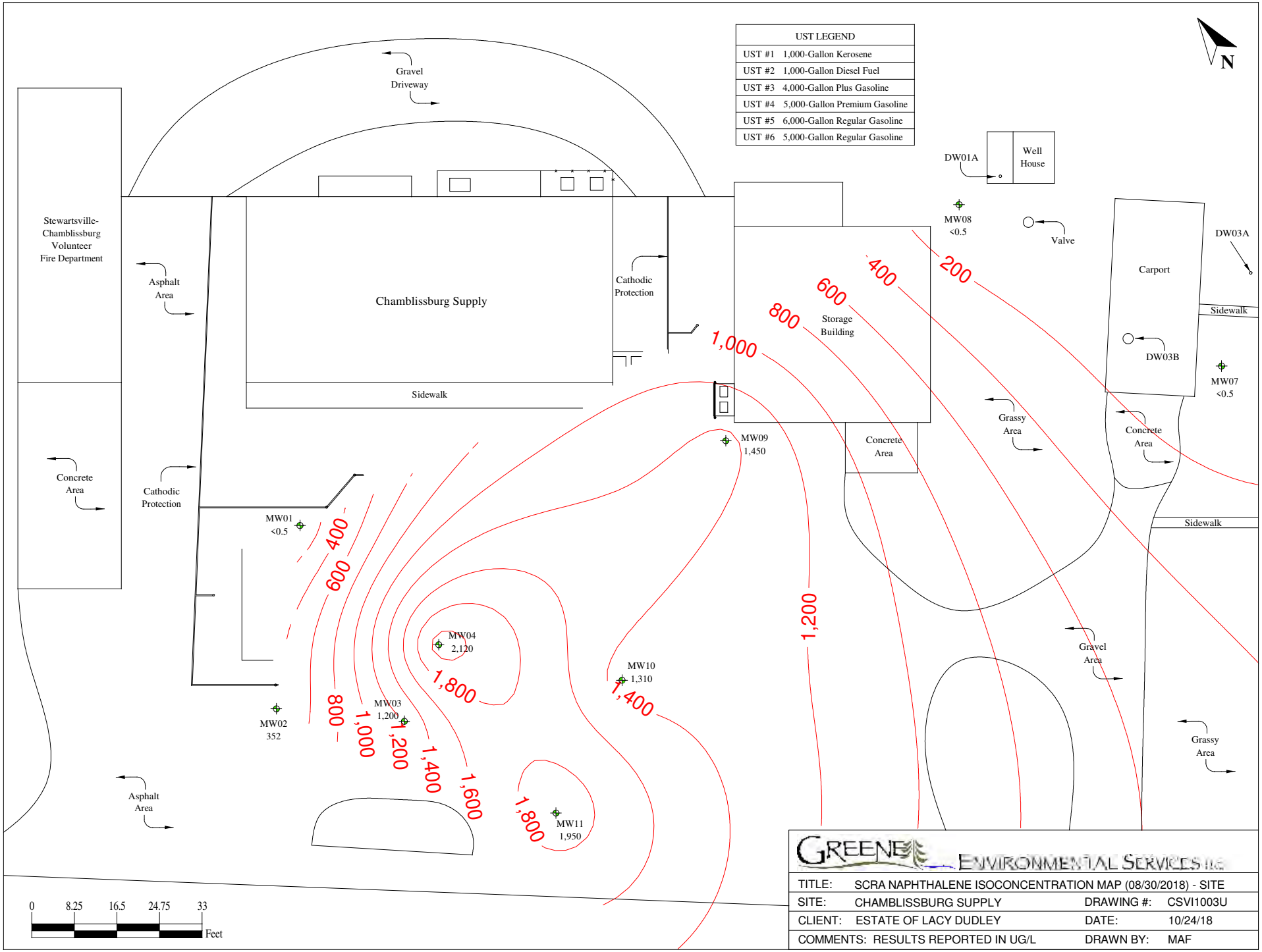

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
DW01A
Well House
MW08 <1.0
Valve
DW03A
Carport
Sidewalk
DW03B
MW07 <1.0
MW09 10,400
Concrete Area
Cathodic Protection
MW01 45.7
MW04 20,200
MW10 9,870
MW03 14,400
MW02 1,950
MW11 23,500
Asphalt Area
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
20,000
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA MTBE ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003S
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/24/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF

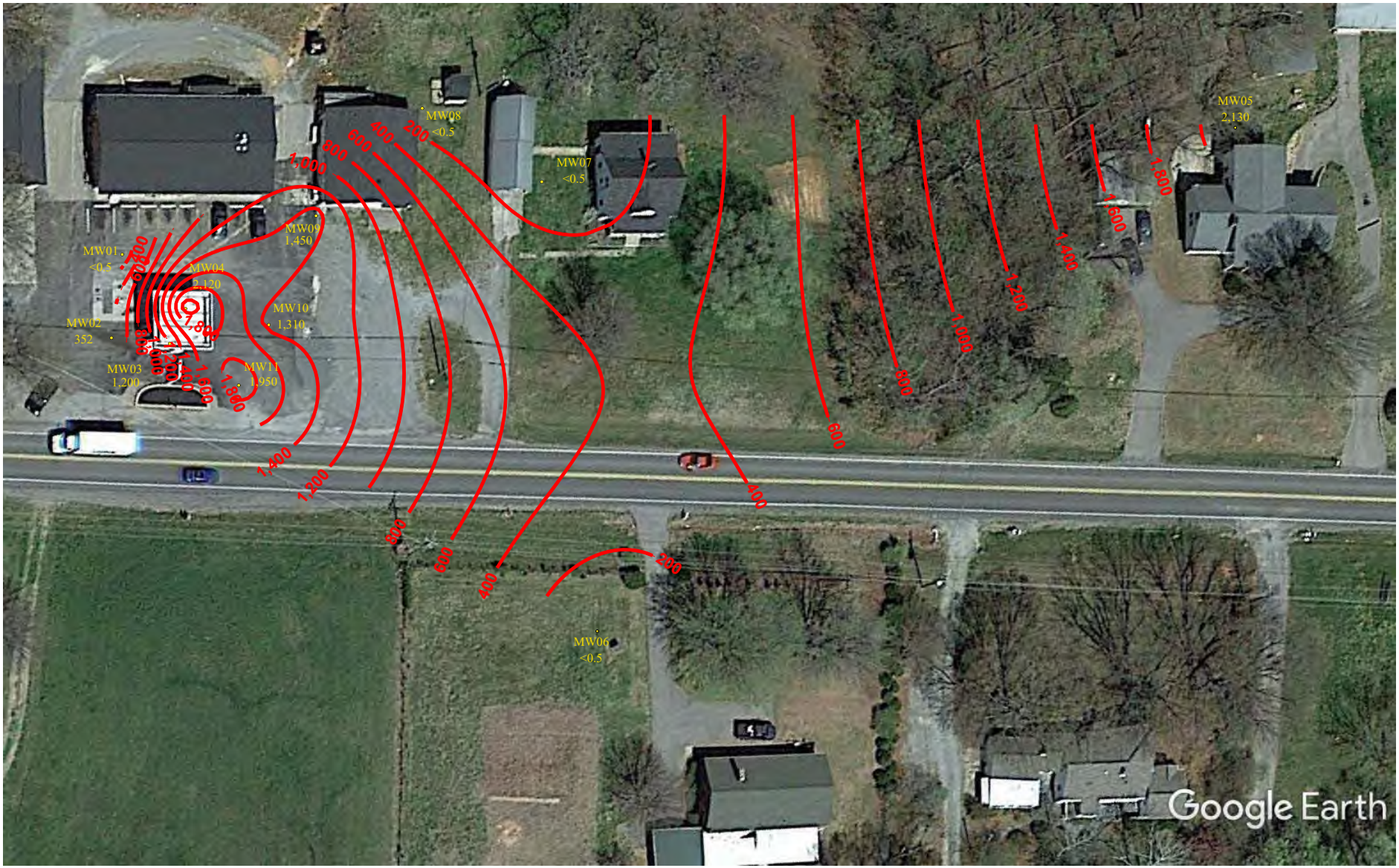


0 26.5 53 79.5 106 Feet

GREENE ENVIRONMENTAL SERVICES INC

TITLE:	SCRA MTBE ISOCONCENTRATION MAP (08/30/2018) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1003T
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	10/24/18
COMMENTS:	REPORTED IN UG/L	DRAWN BY:	MAF

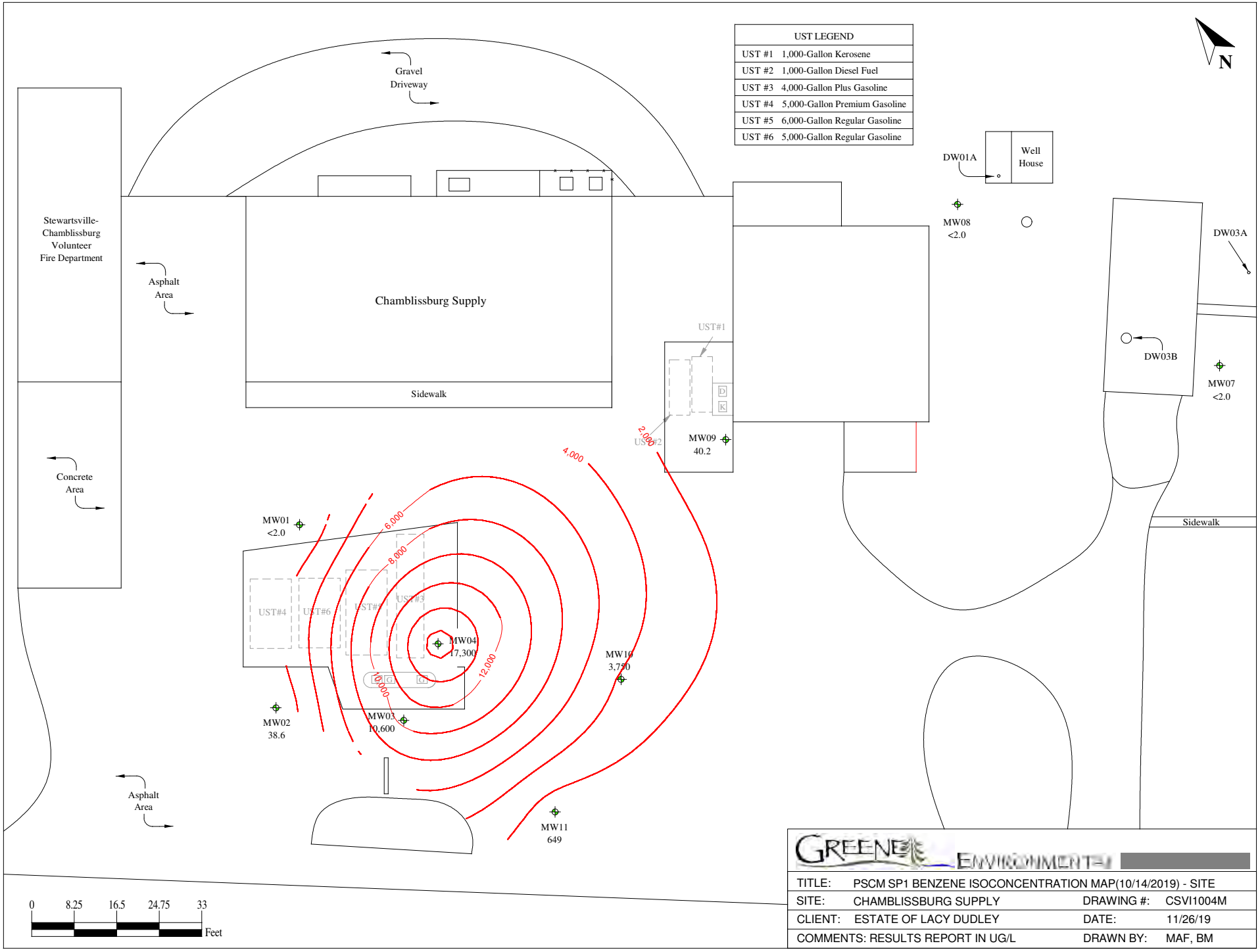

UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Cathodic Protection
Sidewalk
DW01A
Well House
MW08 <0.5
Valve
DW03A
Carport
Sidewalk
Storage Building
DW03B
MW07 <0.5
Grassy Area
Concrete Area
MW09 1,450
Concrete Area
Concrete Area
Cathodic Protection
MW01 <0.5
Sidewalk
200
400
600
800
1,000
1,200
1,400
1,600
1,800
MW04 2,120
MW10 1,310
MW03 1,200
MW02 352
Gravel Area
Grassy Area
Asphalt Area
MW11 1,950
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL SERVICES INC
TITLE: SCRA NAPHTHALENE ISOCONCENTRATION MAP (08/30/2018) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1003U
CLIENT: ESTATE OF LACY DUDLEY
DATE: 10/24/18
COMMENTS: RESULTS REPORTED IN UG/L
DRAWN BY: MAF



0 26.5 53 79.5 106 Feet

GREENE ENVIRONMENTAL SERVICES LLC.

TITLE:	SCRA NAPHTHALENE ISOCONCENTRATION MAP (10/10/2017) - AERIAL		
SITE:	CHAMBLISSBURG SUPPLY	DRAWING #:	CSVI1003V
CLIENT:	ESTATE OF LACY DUDLEY	DATE:	12/18/17
COMMENTS:		DRAWN BY:	MAF


UST LEGEND
UST #1 1,000-Gallon Kerosene
UST #2 1,000-Gallon Diesel Fuel
UST #3 4,000-Gallon Plus Gasoline
UST #4 5,000-Gallon Premium Gasoline
UST #5 6,000-Gallon Regular Gasoline
UST #6 5,000-Gallon Regular Gasoline
N
Gravel Driveway
Stewartsville-Chamblissburg Volunteer Fire Department
Asphalt Area
Chamblissburg Supply
Sidewalk
Concrete Area
Asphalt Area
DW01A
Well House
MW08 <2.0
DW03A
DW03B
MW07 <2.0
UST#1
UST#2
MW09 40.2
2,000
4,000
6,000
8,000
10,000
12,000
MW01 <2.0
UST#4
UST#6
UST#5
UST#3
MW04 17,300
MW10 3,750
MW02 38.6
MW03 10,600
MW11 649
Sidewalk
0 8.25 16.5 24.75 33
Feet
GREENE ENVIRONMENTAL
TITLE: PSCM SP1 BENZENE ISOCONCENTRATION MAP(10/14/2019) - SITE
SITE: CHAMBLISSBURG SUPPLY
DRAWING #: CSVI1004M
CLIENT: ESTATE OF LACY DUDLEY
DATE: 11/26/19
COMMENTS: RESULTS REPORT IN UG/L
DRAWN BY: MAF, BM