

Preliminary Site Assessment Report

November 14, 2018
WBS Element: 44625.1.1
State Project: U-5888
Haywood County

at

Muse Brothers Construction Co Inc. Property
Parcel #012
871 N Main Street, Waynesville, NC 28786
PIN #: 8615-69-2768
Facility ID No.: N/A
Groundwater Incident No.: 41345 and 41553

Prepared For:

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1.0 Introduction

1.1 General Site Background Information

Seramur & Associates, PC was contracted to complete a Preliminary Site Assessment (PSA) at:

Muse Brothers Construction Co Inc. Property
Parcel #012
PIN #: 8615-69-2768
871 N Main Street, Waynesville, NC 28786
Facility ID No.: N/A
Groundwater Incident No.: 41345 and 41553

This property is located on the north side of North Main Street west of the intersection with Leatherwood Road (Figure 1). The property was previously developed but had the remaining structure demolished just prior to our assessment work. The proposed Right-of-Way (R/W) runs along the south side of the property (Figure 2). It is our understanding that the R/W is being investigated as part of a traffic circle being built to replace the current intersection.

2.0 Scope of Work

The PSA scope of work included completing a geophysical survey at the property to investigate the potential for underground storage tanks within the proposed R/W. Following the geophysical survey, soil sampling and analyses were performed to assess soil quality and estimate the volume of potentially contaminated soil at the site (Figure 3).

2.1 Background Research

According to Haywood County Tax Administration records, the property is currently owned by Muse Brothers Construction Co Inc. A review of historic aerial photographs showed that the property was developed in the 1960's. Haywood County Tax Administration records do not indicate when the former structures were built or demolished.

A gas station was located on the western side of the property. The fuel tanks were removed in 1996 and after that the property was used as an auto body shop. There is no Facility I.D. Number associated with this former gas station. The 1996 closure report indicated that there were three gasoline USTs located south of the building and a heating oil UST and a kerosene UST located on the north side of the building. Soil samples collected as part of the 1996 UST closures did not contain petroleum constituents above the NCDENR Action Levels. A tank closure report for the gasoline and kerosene USTs was not filed with NCDENR. There are two Incident Numbers (41345 and 41553) associated with the property. These incidents are related to the heating oil and waste oil USTs. The former structure located on the east side of the property operated as a carwash. It was out of service by the time the report for incident 41345 was completed in 2015.

During the initial site visit, a backhoe was parked on the property. The dirt in the footprint of the former building on the west side of the property appeared fresh. It appears that the building had been recently demolished prior to our site visit. During the geophysical survey, a worker was tamping fresh soil in the building footprint.

Seramur and Associates personnel made a pedestrian reconnaissance of the property during the initial site visit on September 25, 2018. At that time, the proposed work area was marked with white paint for utility locating purposes. A utility locate request was initiated with the North Carolina 811 system on October 14, 2018, approximately one week before commencing with drilling.

The two incidents were reviewed via electronic files received from NCDEQ. The earlier incident (41345) was related to a 550 gallon heating oil UST located on the north side of the former auto body repair shop. Soil samples collected during the site investigation contained petroleum constituents below the NCDENR Action Levels. The Phase II Subsurface Investigation determined that groundwater samples contained petroleum constituents above the NCDENR Groundwater Standards. A Notice of Residual Petroleum was placed on the deed to the property and a Notice of No Further Action was issued on January 14, 2016.

The second incident (41553) was related to a 500 gallon waste oil UST that was also located on the north side of the building. One soil sample was collected from under the UST after its removal. Petroleum constituents were not detected in the soil sample above the NCDEQ Action Levels and Soil-to-Groundwater MSCCs for this sample. A Notice of No Further Action was issued for this incident on July 18, 2017.

2.2 Plate 1 – Photos of Parcel #012

Plate 1. Photographs of Parcel #012 (10-23-18)



Describing and sampling Geoprobe cores. Driveway of former gas station is in the distance.



Drillers setting up on boring B-17. Footprint of former carwash is in the foreground.

2.3 Geophysical Surveys

Seramur & Associates set up three grids for a geophysical survey at Parcel #012 (Figures 4 through 7). Grid 1 extended from the west side of the property towards the east extending just north of the proposed R/W. Grid 2 extended from the eastern end of Grid 1 toward the east and Grid 3 extended from the eastern end of Grid 2 towards the eastern property boundary. The magnetometer was used to survey areas outside of the three grids that were within the proposed R/W. Geophysical data were collected along transects at a 2-foot spacing.

The Magnetometer survey was completed with a MF-1 Fluxgate magnetometer. The MF-1 Fluxgate magnetometer is designed to measure changes in the Earth's magnetic field associated with larger ferrous objects. It does not respond to smaller objects such as nails or wire, but responds well to variations in the Earth's magnetic field produced by manholes, steel pipe, buried drums and tanks. The sensitivity level is well suited for detecting buried USTs at commercial and industrial facilities. Magnetometer data was compiled in an Excel spreadsheet and a contour map with hill shade was drafted using Golden Software's Surfer® modeling program (Figure 4).

A Ground Penetrating Radar (GPR) survey was completed across the grids using Geophysical Survey Systems, Inc. 400 MHz antenna and a SIR-3000 Single Channel Data Acquisition System with a calibrated survey wheel. The GPR data was downloaded and saved onto a computer. The GPR grid data has been processed and modeled using GPR Slice® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections.

Three-dimensional models of the GPR grid data were produced with the GPR Slice® software. Three time slices (or depth slices) were imaged in each of the three grids at depths of 0.3 to 1.1 feet, 1.3-1.9 feet and 2.7 to 3.2 feet (Figures 5 and 6). Each depth slice is a horizontal slice or plan view of the reflections across a 0.5 to 0.6-foot thickness of the subsurface. For example, the deep GPR depth slices for Grids 1 through 3 show reflections in the radar data between depths of 2.7 and 3.2 feet.

2.4 Soil Sampling and Analyses

Carolina Soil Investigations, LLC mobilized to the site on October 23rd to drill Geoprobe borings and collect soil samples. Our project design called for collecting a shallow and deep soil sample from each boring (Figure 3). The purpose of collecting samples at a depth of ~3.0 feet is to test for petroleum releases related to surface spills and releases from product lines. The purpose of collecting samples at a depth of ~9.0 feet is to test for petroleum releases related to underground storage tanks. Soil samples were collected at other depths within the Geoprobe cores if soil staining or petroleum vapors were observed or if limited core recovery occurred. Soil borings were drilled in the proposed R/W along the southern side of the property (Figure 3).

A track-mounted Geoprobe rig was used to drill a total of ten soil borings. A new pair of Nitrile gloves was worn while collecting each soil sample. A representative portion of each soil sample

was placed in a zip lock bag and allowed to rest for a period of time to allow volatile vapors to accumulate in the headspace of the bag. A calibrated Photoionization detector (PID) was used to screen the headspace in each bag and the concentration of volatile petroleum vapors was measured and recorded (Table 1). The texture and type of soil material in the Geoprobe cores was described and recorded. Table 1 lists the soil boring data including sample number, depth, PID reading, lithology and type of soil material.

Samples were collected and shipped on ice to REDLab, LLC, in Wilmington, NC for laboratory analyses. REDLab analyzed the soil samples for petroleum constituents by Ultra-Violet Fluorescence using a QED HC-1 analyzer. The analytical results are reported as Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) and Total Petroleum as Hydrocarbons (TPH). REDLab provides a hydrocarbon spectrum with each of the sample results. This spectrum is used for a tentative identification of the type of hydrocarbon detected by the analytical method. A hydrocarbon fingerprint is interpreted by REDLab for each sample using a library search of spectra for known hydrocarbon types and concentrations. The laboratory reports and fingerprint spectra are included in Appendix B.

3.0 Results of Investigation

Parcel #012 formerly contained a service station and a carwash. The former buildings have been demolished. Two UST incidents have been reported at the site. Both incidents have been issued Notices of No Further Action by NCDEQ.

3.1 Geophysical Surveys

Magnetometer Survey

Several small magnetic anomalies were recorded across the three Grids (Figure 4). One anomaly was detected in Grid 1 and was related to the remnants of a steel pole. Four small anomalies were detected in Grid 2. One was related to a steel plate. One was near a water meter. The other two anomalies were related to subsurface objects, but were too small to represent a UST. Three small anomalies were detected in Grid 3. One of these was produced to a water meter and another was related to a steel grounding rod. One other small subsurface anomaly was detected that was too small to be a UST (Figure 4).

Shallow GPR Depth Slice

The shallow GPR depth slices (0.3 to 1.1 feet) imaged utilities and buried infrastructure (Figure 5). A linear pattern of low amplitude reflections on the western side of Grid 1 represent a utility trench. Two localized high amplitude reflectors in Grid 2 were produced by a drop inlet and a water meter. A rectangular high amplitude reflector in Grid 3 is interpreted to be part of the footing for the former car wash building.

Intermediate GPR Depth Slice

The intermediate GPR depth slices (1.3-1.9 feet) imaged utilities related to the storm drains in Grid 2 (Figure 6).

Deep GPR Depth Slice

The deep GPR depth slices (2.7 to 3.2 feet) imaged utilities related to the storm drains in Grid 2 and a water line in Grid 3 (Figure 7). No evidence of USTs or a UST system was recorded in the R/W or easements by the geophysical surveys.

3.2 Soil Borings, Sampling and Laboratory Results

The soil type at Parcel #012 consisted mostly of a sandy silt fill material. A sandy silt saprolite was recorded at depth in some of the borings (Table 1). Groundwater was not encountered in any of the soil borings. Groundwater was reported at a depth of about 13 feet in previous environmental assessment reports.

Borings B-8 through B-17 were drilled along the center of the easements and R/W from west to east. Petroleum constituents were detected in all but three of the 19 soil samples sent to the laboratory (Table B-3). Petroleum constituents were not detected above the NCDEQ Action Levels for GRO and/or DRO constituents (50 ppm and 100 ppm, respectively) in any of these soil samples. Many of the samples contained DRO concentrations at less than 10 ppm. Only samples S-20, S-24, S-27, S-28, S-29 and S-31 contained DRO concentrations greater than 10 ppm (Table B-3).

3.3 Volume and Extent of Soil Contamination

Contaminated soil, defined as GRO concentrations above 50 ppm and DRO concentrations above 100 ppm, was not detected in soil samples collected at Parcel #012.

3.4 Conclusions

No evidence of a UST system was found within the Right-of-Way or easements of Parcel #012 during this PSA.

Laboratory analyses of soil samples collected within the proposed Right-of-Way and easement on Parcel #012 did not detect concentrations of GRO and DRO constituents above their respective action levels.

3.5 Recommendations

SAPC recommends that no further assessment work take place on the property at this time.

Appendix A

Tables and Figures

Boring No.	Depth (ft)	Lithology	Soil type	Soil Sample	PID ppm	Comments
B-8	0.0 to 5.0	Sandy Silt	Fill	S-16	0.1	Sample at 3.0 feet.
B-8	5.0 to 10.0	Sandy Silt	Fill	S-17	0.2	Sample at 9.0 feet.
B-9	0.0 to 5.0	Sandy Silt	Fill	S-18	0.4	Sample at 3.0 feet.
B-9	5.0 to 10.0	Sandy Silt	Fill	S-19	1.1	Sample at 8.5 feet.
B-10	0.0 to 5.0	Sandy Silt	Fill	S-20	0.1	Sample at 3.0 feet.
B-10	5.0 to 10.0	Sandy Silt	Fill	S-21	0.0	Sample at 7.0 feet.
B-11	0.0 to 5.0	Sandy Silt	Fill	S-22	0.5	Sample at 3.5 feet.
B-11	5.0 to 10.0	Sandy Silt	Fill	S-23	0.5	Sample at 8.0 feet.
B-12	0.0 to 5.0	Sandy Silt	Fill	S-24	0.7	Sample at 3.0 feet.
B-12	5.0 to 10.0	Sandy Silt??	Fill??	N/A	N/A	Rock blocking core. No recovery. No sample.
B-13	0.0 to 5.0	Sandy Silt	Fill	S-25	0.4	Sample at 2.5 feet.
B-13	5.0 to 10.0	Sandy Silt	Fill	S-26	0.8	Sample at 7.5 feet.
B-14	0.0 to 5.0	Sandy Silt	Fill	S-27	1.2	Sample at 1.5 feet.
B-14	5.0 to 10.0	Sandy Silt	Saprolite	S-28	0.0	Sample at 9.0 feet.
B-15	0.0 to 5.0	Sandy Silt	Fill	S-29	0.7	Sample at 2.0 feet.
B-15	5.0 to 10.0	Sandy Silt	Saprolite	S-30	0.1	Sample at 9.0 feet.
B-16	0.0 to 3.0 3.0 to 5.0	Sandy Silt	Fill Saprolite	S-31	0.1	Sample at 1.0 feet.
B-16	5.0 to 10.0	Sandy Silt	Saprolite	S-32	0.1	Sample at 9.0 feet.
B-17	0.0 to 2.0 2.0 to 5.0	Sandy Silt	Fill Saprolite	S-33	0.4	Sample at 3.0 feet.
B-17	5.0 to 10.0	Sandy Silt	Saprolite	S-34	0.4	Sample at 8.0 feet.

Table B-3: Summary of Soil Sampling Results

Revision Date: 10/25/18

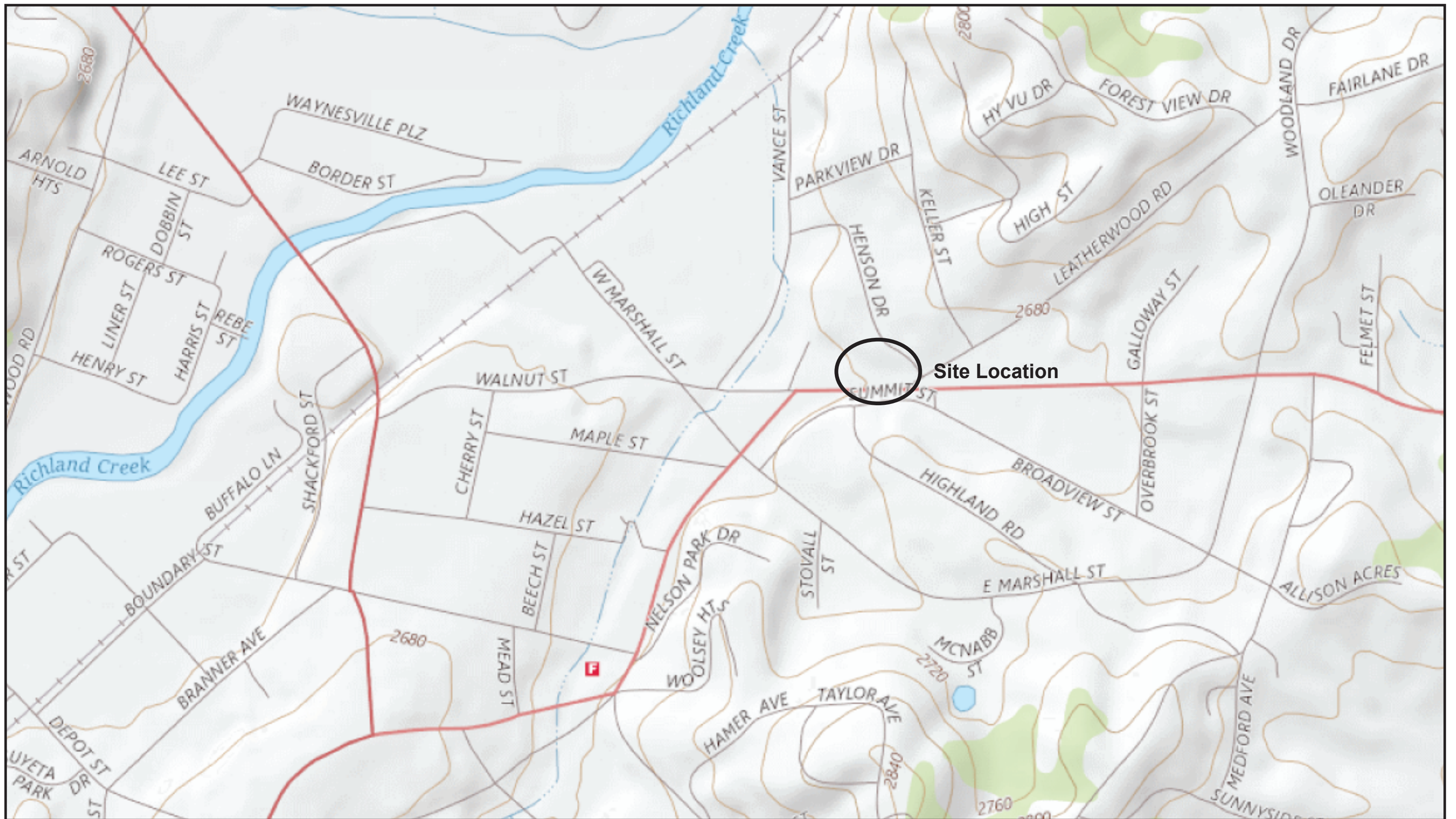
Incident Number and Name: 41345, 41553 Muse Brothers Construction Co. Inc

Parcel ID#: 012

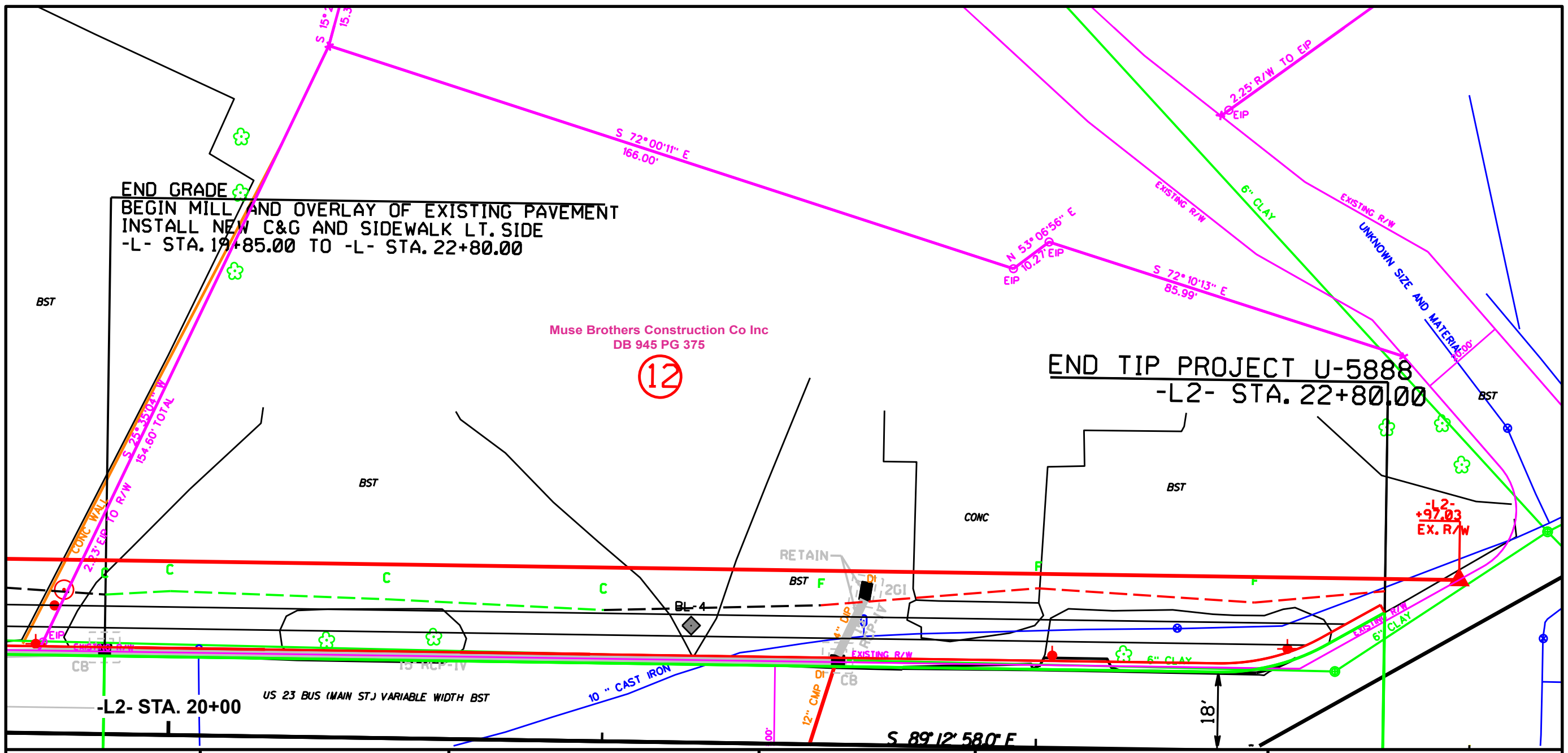
Analytical Method (e.g., VOC by EPA 8260) →					UVF	UVF
Contaminant of Concern →					TPH GRO (mg/kg)	TPH DRO (mg/kg)
Sample ID	Date Collected (mm/dd/yy)	Source Area	Sample Depth (ft. BGS)	Incident Phase		
S-16	10/23/18	B-8	3.0	PSA	<0.78	0.55
S-17	10/23/18	B-8	9.0	PSA	<0.87	2.7
S-18	10/23/18	B-9	3.0	PSA	<0.78	4.1
S-19	10/23/18	B-9	8.5	PSA	<0.61	1.7
S-20	10/23/18	B-10	3.0	PSA	<1.0	14.9
S-21	10/23/18	B-10	7.0	PSA	<0.66	2.1
S-22	10/23/18	B-11	3.5	PSA	<0.75	0.99
S-23	10/23/18	B-11	8.0	PSA	<0.74	3.3
S-24	10/23/18	B-12	3.0	PSA	<1.5	12.2
S-25	10/23/18	B-13	2.5	PSA	<0.66	2.0
S-26	10/23/18	B-13	7.5	PSA	<0.71	2.3
S-27	10/23/18	B-14	1.5	PSA	<0.93	30.8
S-28	10/23/18	B-14	9.0	PSA	<0.64	16.3
S-29	10/23/18	B-15	2.0	PSA	<0.58	21.1
S-30	10/23/18	B-15	9.0	PSA	<1.1	<0.43
S-31	10/23/18	B-16	1.0	PSA	<0.61	26.3
S-32	10/23/18	B-16	9.0	PSA	<0.56	<0.22
S-33	10/23/18	B-17	3.0	PSA	<0.67	4.1
S-34	10/23/18	B-17	8.0	PSA	<0.98	<0.39
NC DEQ Action Level (mg/kg)					50	100

ft. BGS = feet below ground surface

mg/kg = milligrams per kilogram



<p>Figure 1 Site Location Map Source: U.S.G.S. The National Map</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC</p>	<p>Parcel #012 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	
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END GRADE
 BEGIN MILL AND OVERLAY OF EXISTING PAVEMENT
 INSTALL NEW C&G AND SIDEWALK LT. SIDE
 -L- STA. 19+85.00 TO -L- STA. 22+80.00

Muse Brothers Construction Co Inc
 DB 945 PG 375

12

END TIP PROJECT U-5888
 -L2- STA. 22+80.00

-L2-
 +97.03
 EX. R/W

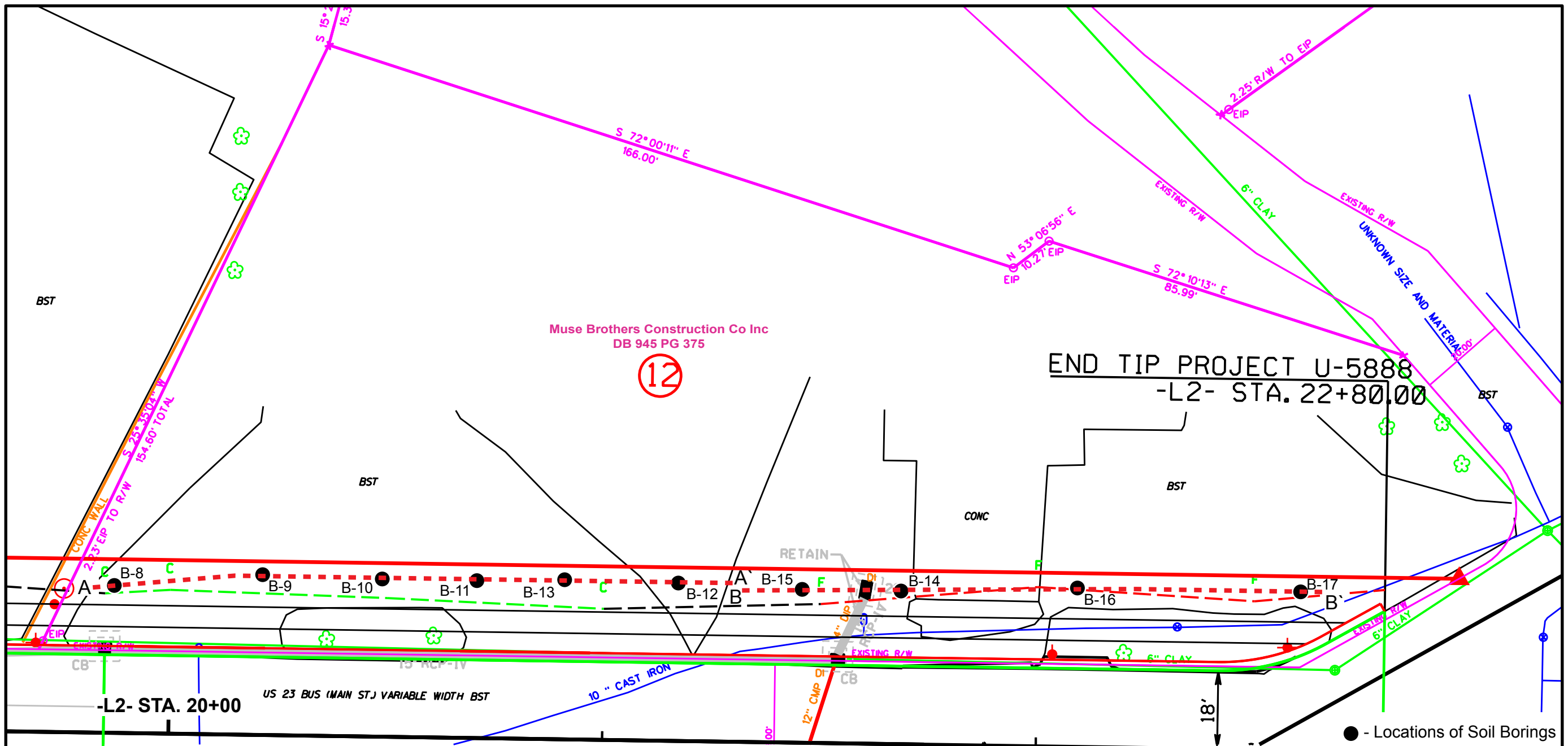
-L2- STA. 20+00

US 23 BUS (MAIN ST.) VARIABLE WIDTH BST

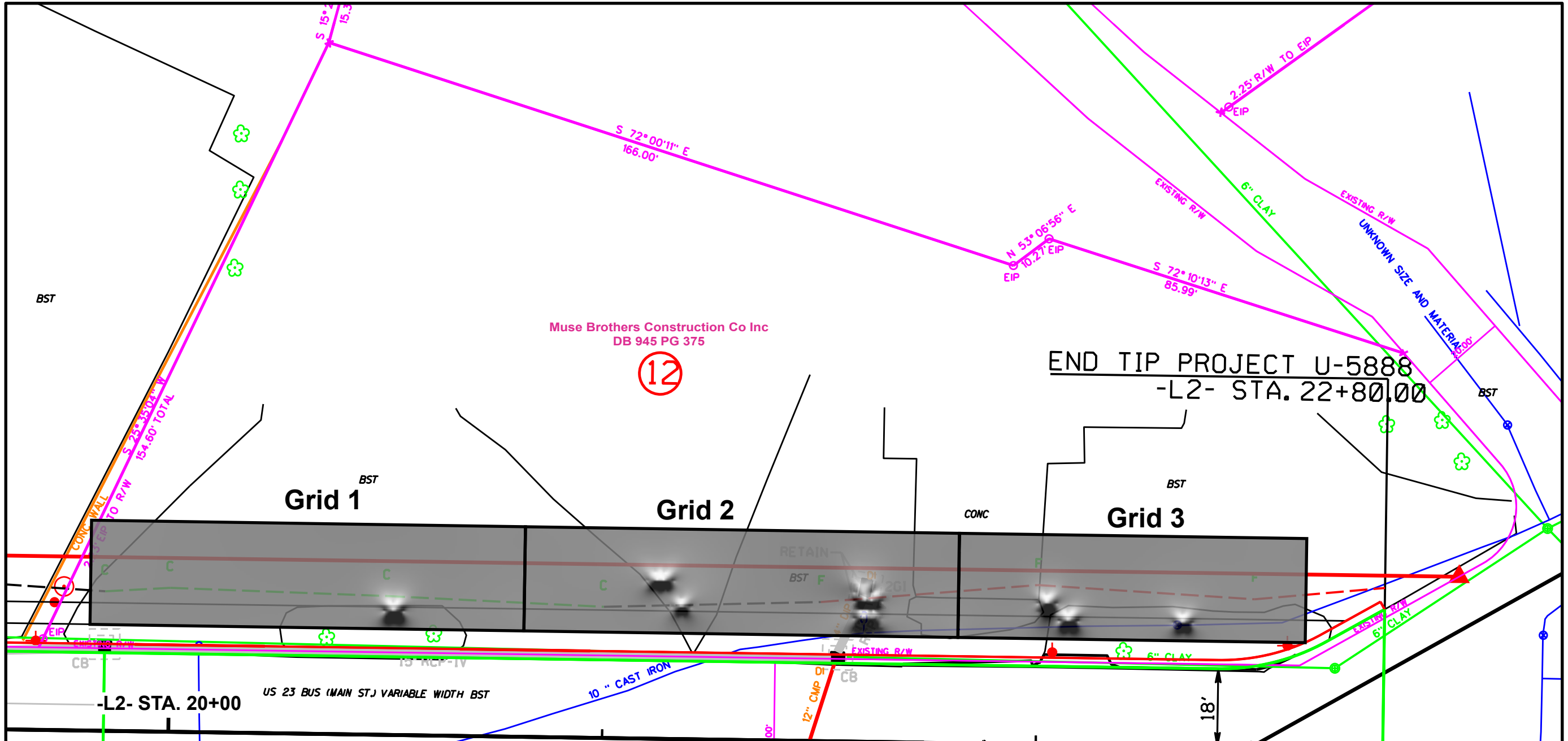
S 89° 12' 58.0" E

18'

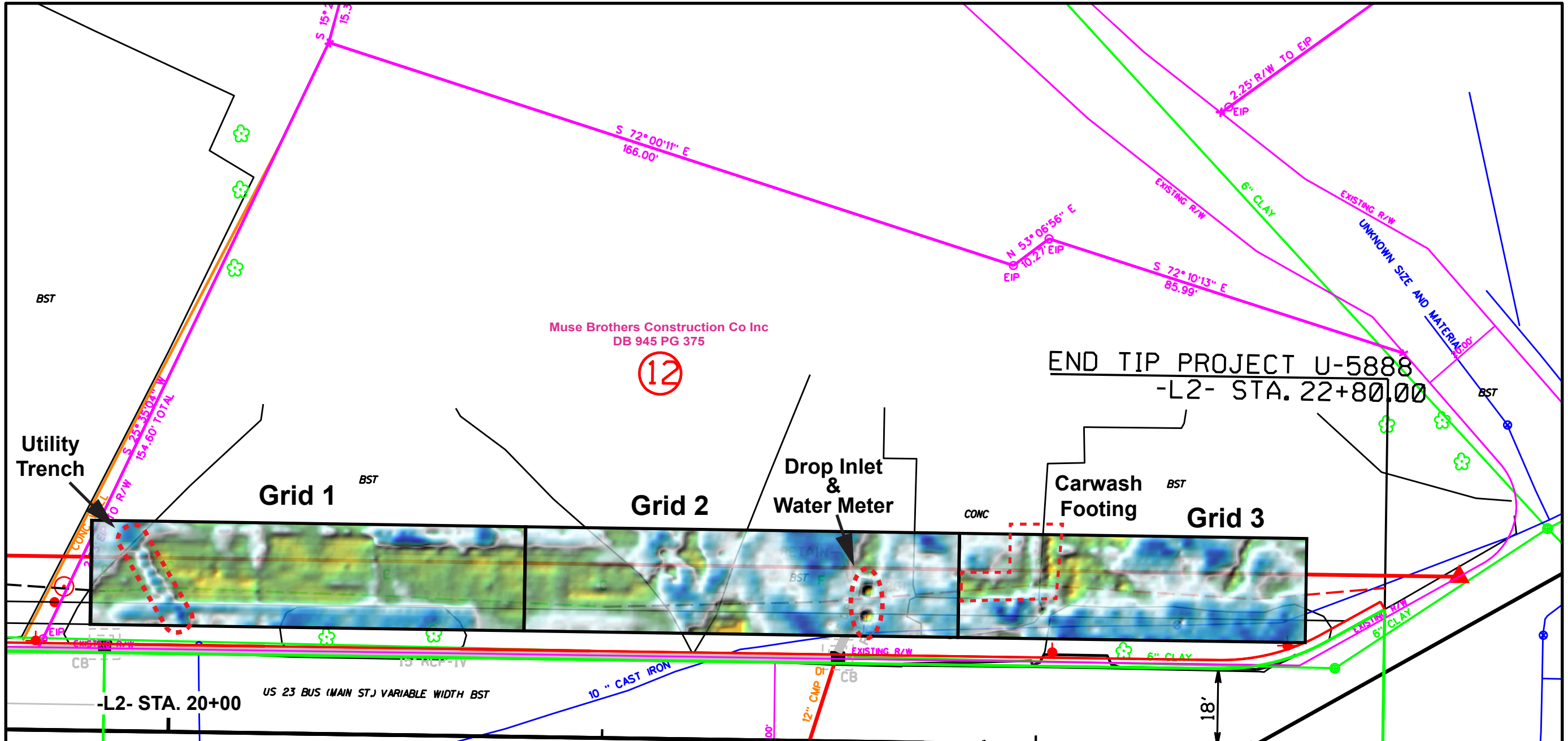
<p>Figure 2 Site Plan</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC</p>	<p>Parcel #012 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	
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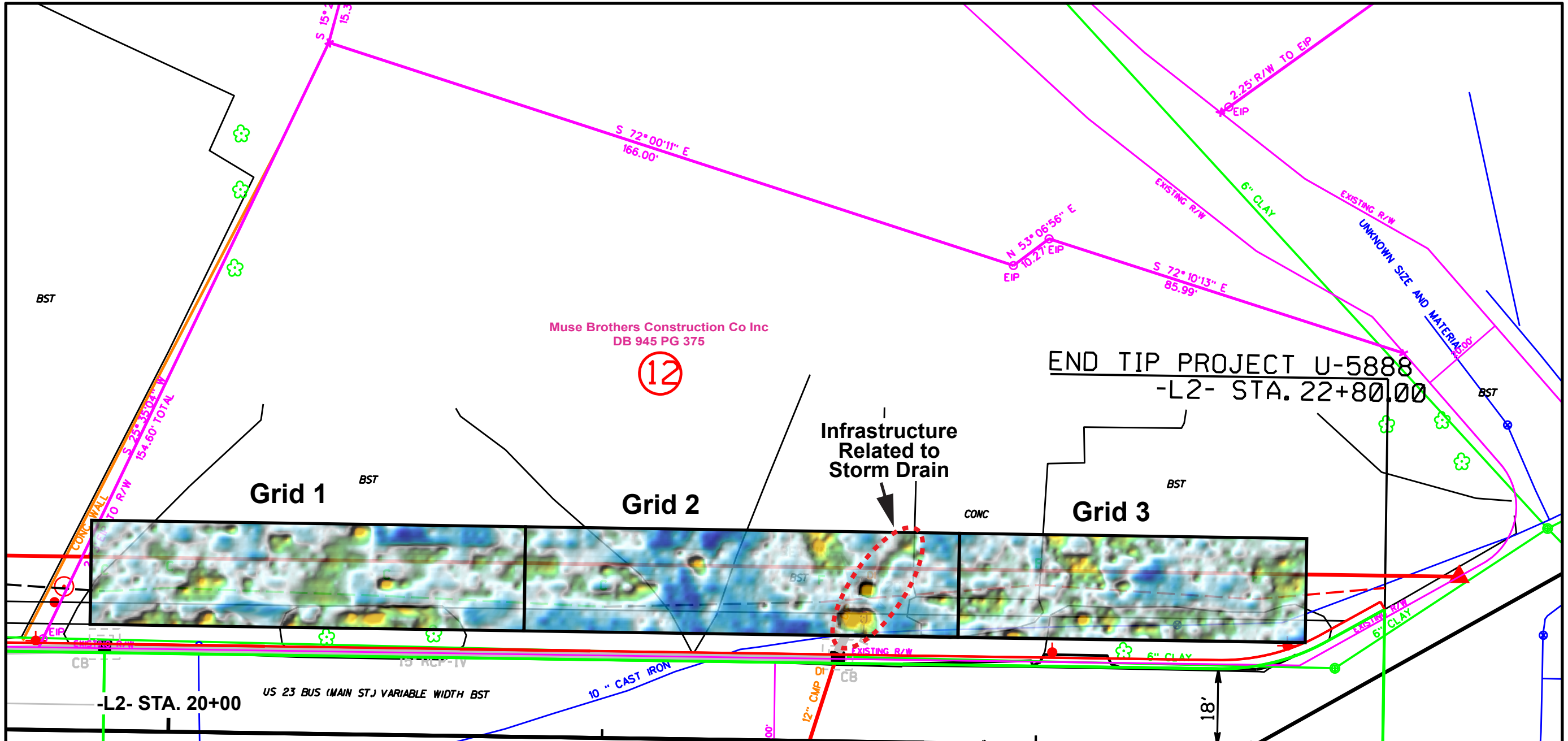
<p>Figure 3 Site Plan with Soil Boring and Cross-Section Locations</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC</p>	<p>Parcel #012 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	<p>0 20 40 Feet</p> <p>N</p>
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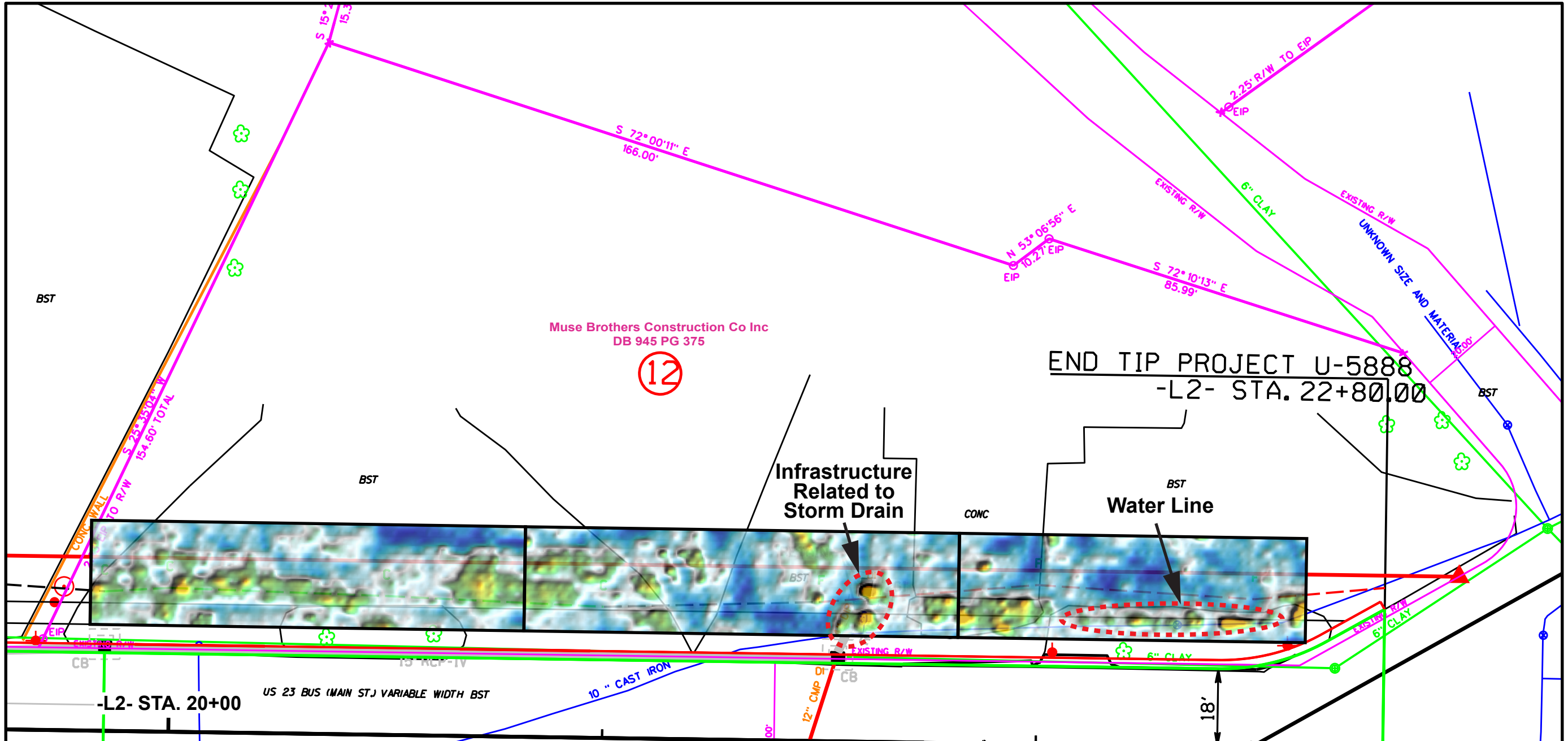
<p>Figure 4 Magnetometer Survey Results</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC</p>	<p>Parcel #012 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	<p>0 20 40 Feet</p> <p>N</p>
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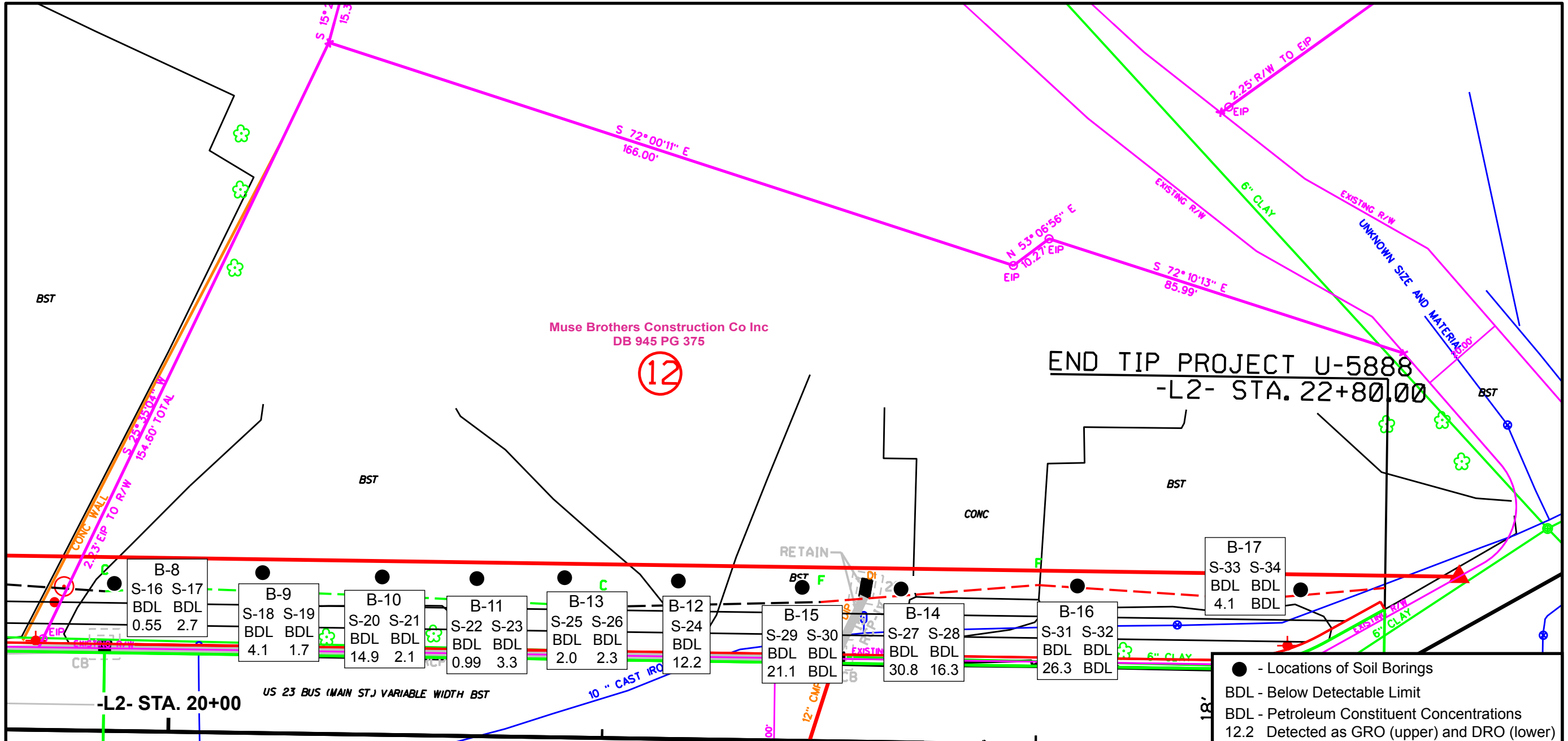
<p>Figure 5 Shallow GPR Depth Slices (0.3 - 0.8 ft.)</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC</p>	<p>Parcel #012 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	
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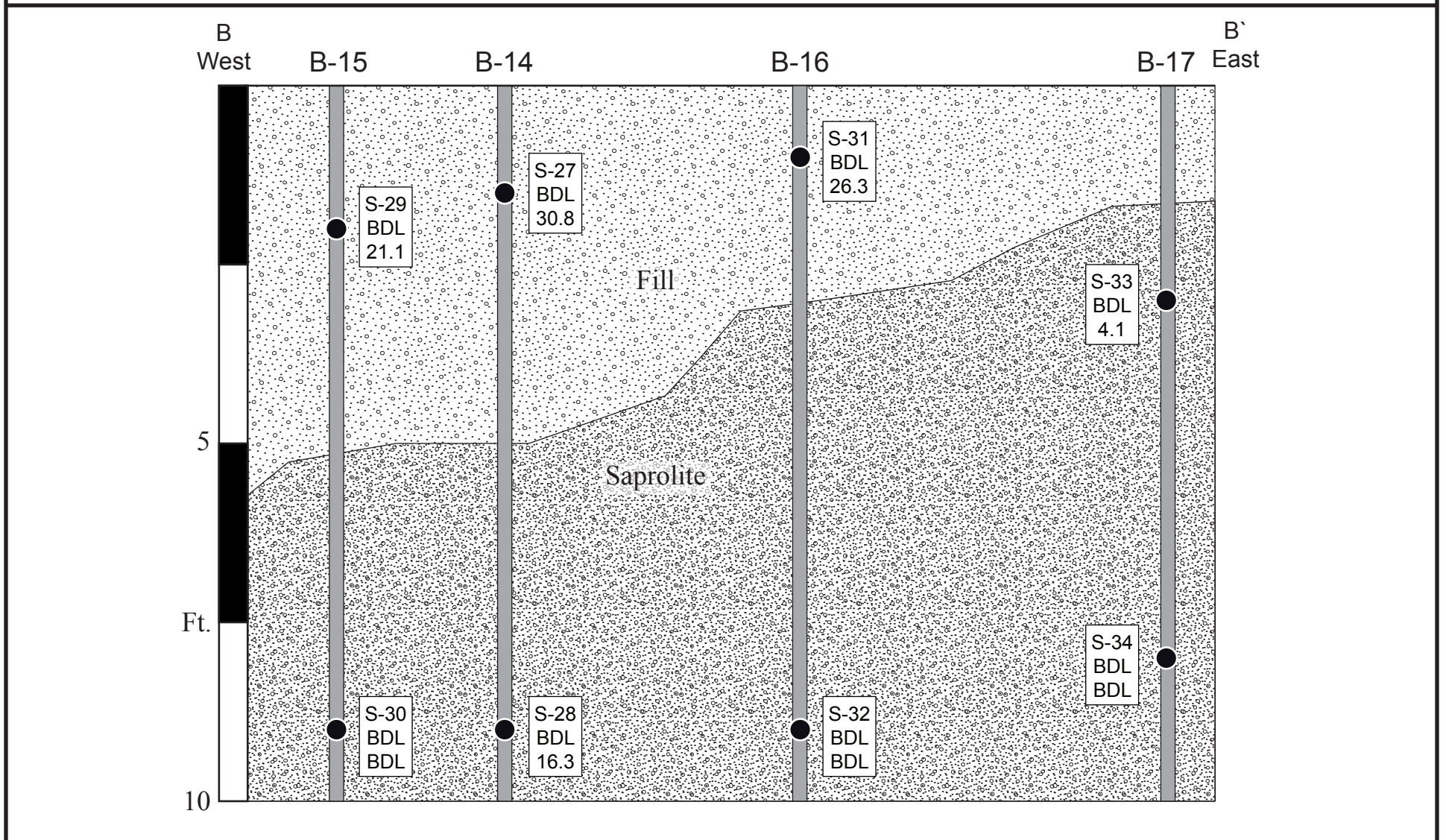
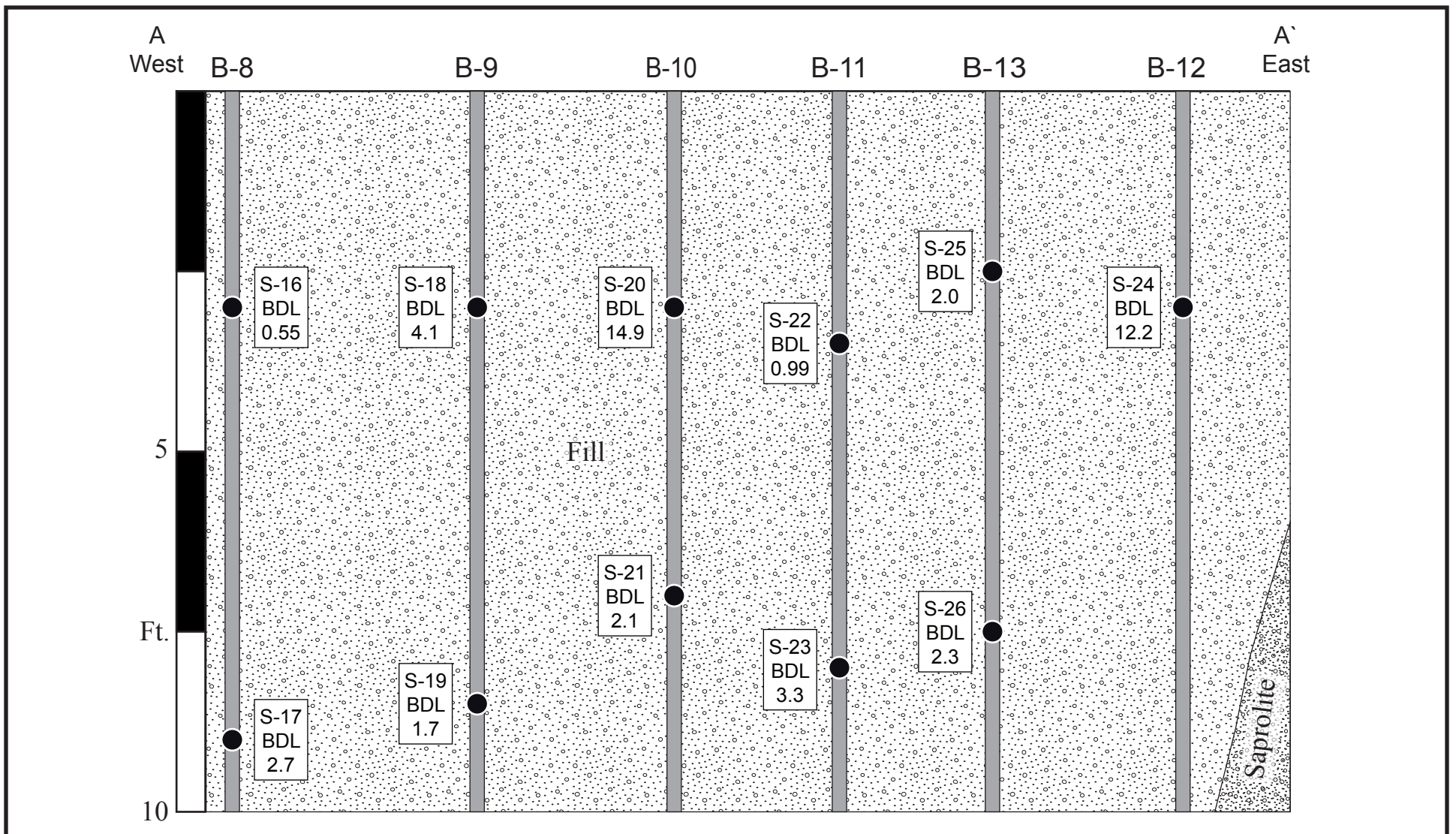
<p>Figure 6 Intermediate GPR Depth Slices (1.3 - 1.9 ft.)</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC</p>	<p>Parcel #012 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	<p>0 20 40 Feet</p> <p>N</p>
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<p>Figure 7 Deep GPR Depth Slices (2.6 - 3.2 ft.)</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC</p>	<p>Parcel #012 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	<p>0 20 40 Feet</p> <p>N</p>
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<p>Figure 8 Soil Analytical Results</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC</p>	<p>Parcel #012 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	<p>0 20 40 Feet</p> <p>N</p>
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● - Locations of Soil Samples BDL - Below Detectable Limit 1.3 - Petroleum Constituent Concentrations
 2.1 - Detected as GRO (upper) and DRO (lower)

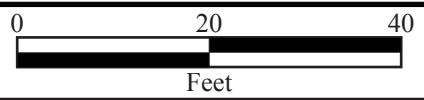


Figure 9 Cross-Sections A-A' and B-B'	State Project: U-5888 Haywood County, NC	Muse Brothers Construction Co, Inc. Property 871 N Main Street Waynesville, NC	Parcel #012 Facility I.D.: N/A	Seramur & Associates, PC Boone, NC
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Appendix B

Laboratory Reports and Chain of Custody Records



Hydrocarbon Analysis Results

Client: SERAMUR & ASSOCIATES PC
Address: 165 KNOLL DRIVE
 BOONE NC 28607

Samples taken Tuesday, October 23, 2018
Samples extracted Tuesday, October 23, 2018
Samples analysed Thursday, October 25, 2018

Contact: KEITH SERAMUR
 COLLECTED BY JA
Project: NCDOT U-5888 P012

Operator NICK HENDRIX

U04049

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
Soil	S-16	31.3	<0.78	<0.78	0.55	0.55	0.28	0.01	<0.009	0	66.9	33.1	V.Deg.PHC 54.7%,(FCM)
Soil	S-17	34.7	<0.87	<0.87	2.7	2.7	1.1	0.06	<0.01	0	89.4	10.6	Deg Fuel 76.4%,(FCM)
Soil	S-18	31.3	<0.78	<0.78	4.1	4.1	1.9	0.09	0.002	0	79.5	20.5	V.Deg.PHC 75.7%,(FCM),(P)
Soil	S-19	24.3	<0.61	<0.61	1.7	1.7	0.72	0.02	<0.007	0	86.1	13.9	V.Deg.PHC 75.2%,(FCM)
Soil	S-20	40.6	<1	<1	14.9	14.9	6.5	0.32	0.005	0	89.3	10.7	V.Deg.PHC 91%,(FCM)
Soil	S-21	26.5	<0.66	<0.66	2.1	2.1	0.87	0.03	<0.008	0	83.9	16.1	V.Deg.PHC 74.9%,(FCM)
Soil	S-22	29.9	<0.75	<0.75	0.99	0.99	0.58	0.02	<0.009	0	91.9	8.1	Deg Fuel 74.7%,(FCM)
Soil	S-23	29.5	<0.74	<0.74	3.3	3.3	1.5	0.05	<0.009	0	87.9	12.1	Deg.PHC 60.3%,(FCM)
Soil	S-24	60.0	<1.5	<1.5	12.2	12.2	4.8	0.19	0.003	0	87.8	12.2	Deg.PHC 81.5%,(FCM)
Soil	S-25	26.3	<0.66	<0.66	2	2	1.1	0.05	<0.008	0	85.8	14.2	V.Deg.PHC 75.2%,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

103.0%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modified Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser



Hydrocarbon Analysis Results

Client: SERAMUR & ASSOCIATES PC
Address: 165 KNOLL DRIVE
 BOONE NC 28607

Samples taken Tuesday, October 23, 2018
Samples extracted Tuesday, October 23, 2018
Samples analysed Thursday, October 25, 2018

Contact: KEITH SERAMUR
 COLLECTED BY JA
Project: NCDOT U-5888 P012

Operator NICK HENDRIX

U04049

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
Soil	S-26	28.6	<0.71	<0.71	2.3	2.3	1	0.05	<0.009	0	90.7	9.3	Deg.PHC 73.8%,(FCM)
Soil	S-27	37.1	<0.93	<0.93	30.8	30.8	13.4	0.73	0.015	0	91.5	8.5	Deg Fuel 75.9%,(FCM)
Soil	S-28	25.7	<0.64	<0.64	16.3	16.3	7	0.37	0.007	0	92.8	7.2	Deg Fuel 74.1%,(FCM)
Soil	S-29	23.0	<0.58	<0.58	21.1	21.1	11.7	0.57	0.009	0	90.4	9.6	V.Deg.PHC 73.2%,(FCM)
Soil	S-30	42.6	<1.1	<1.1	<0.43	0.04	0.04	0.004	<0.013	0	100	0	Residual HC,(P)
Soil	S-31	24.3	<0.61	<0.61	26.3	26.3	14.4	0.7	0.017	0	89.1	10.9	V.Deg.PHC 75.8%,(FCM)
Soil	S-32	22.2	<0.56	<0.56	<0.22	<0.56	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)
Soil	S-33	26.8	<0.67	<0.67	4.1	4.1	1.4	0.07	0.001	0	88	12	Deg Fuel 74.7%,(FCM)
Soil	S-34	39.4	<0.98	<0.98	<0.39	<0.98	<0.02	<0.02	<0.012	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

99.1%

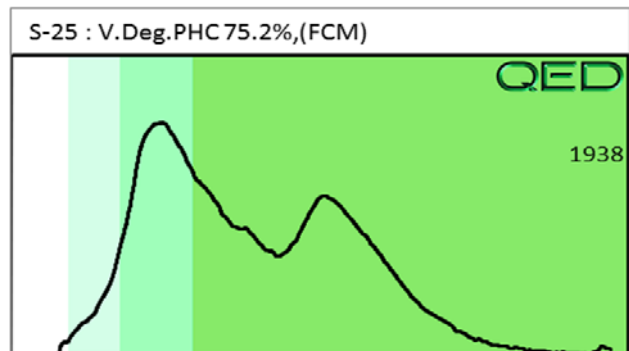
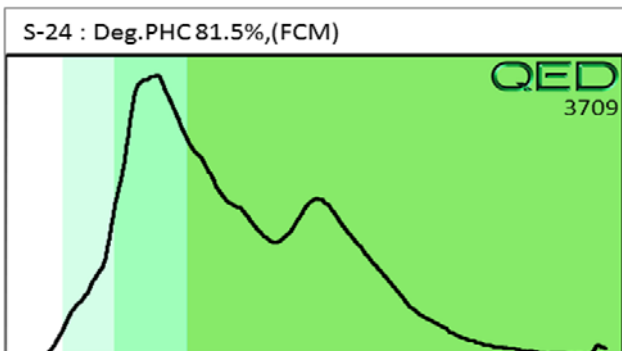
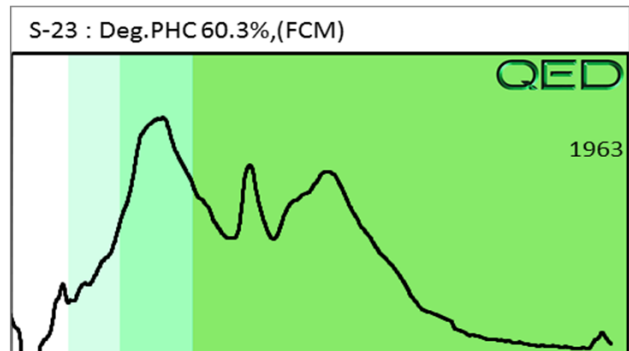
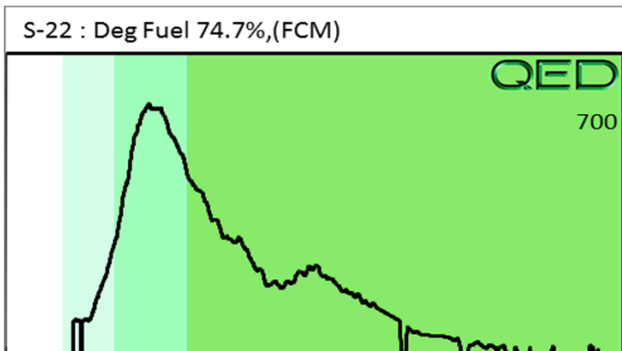
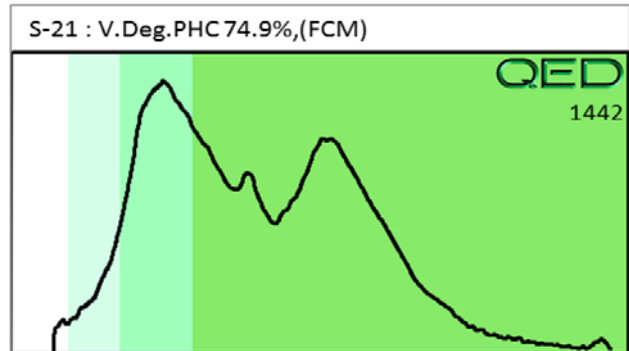
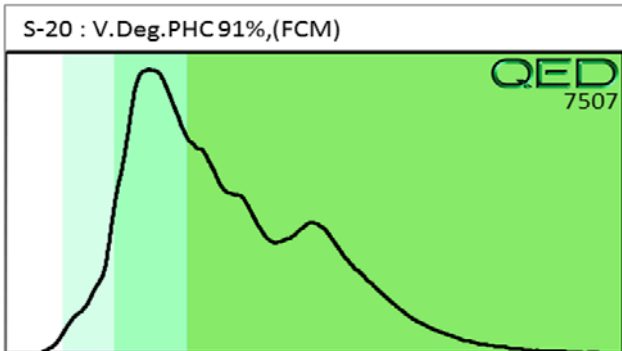
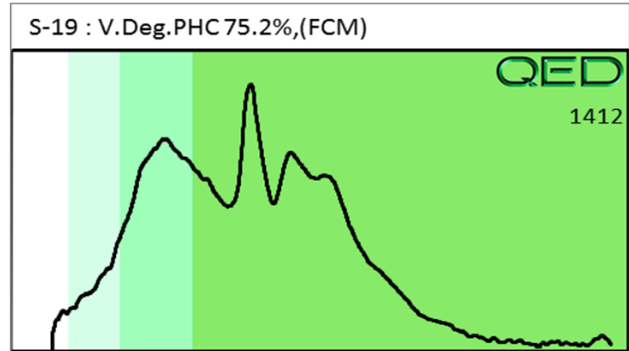
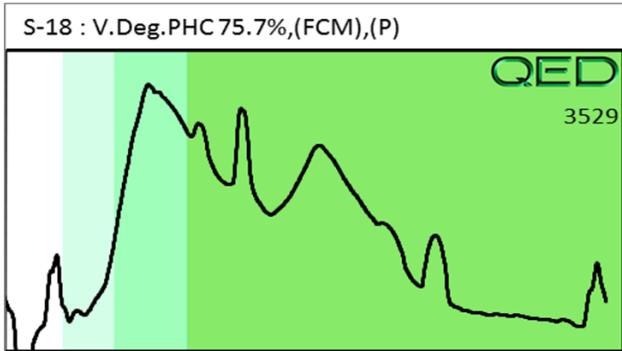
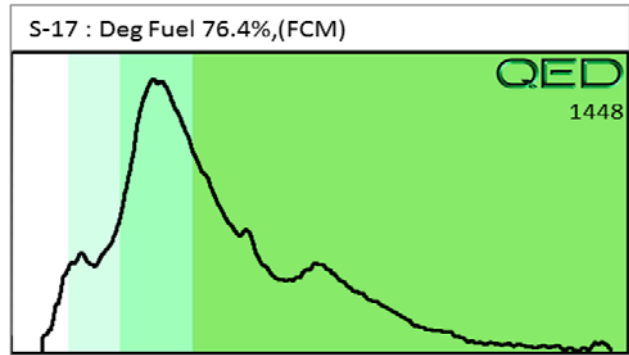
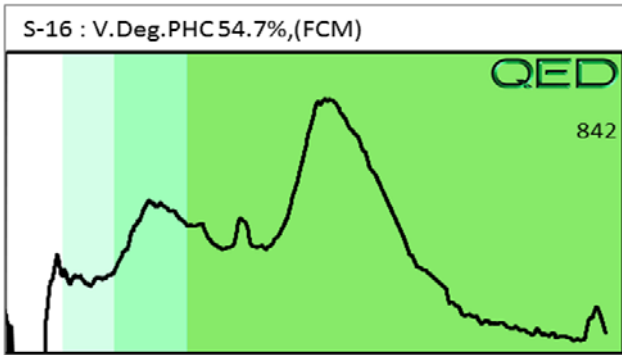
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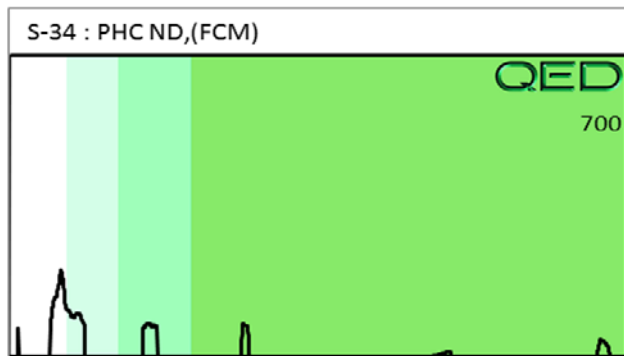
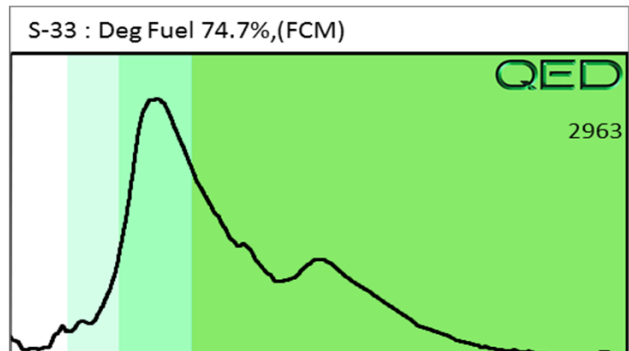
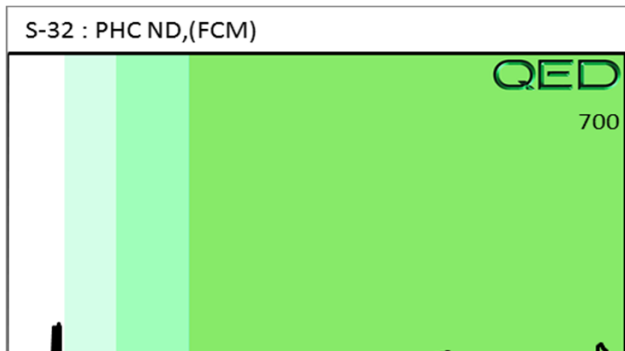
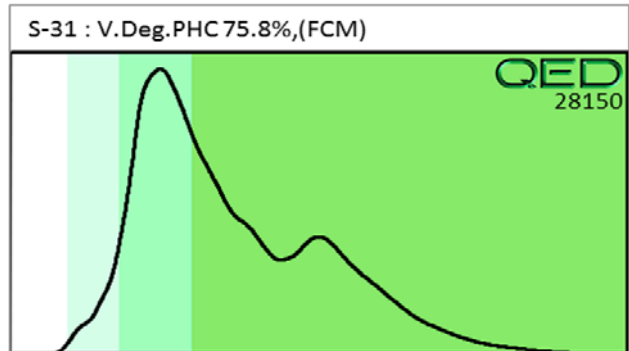
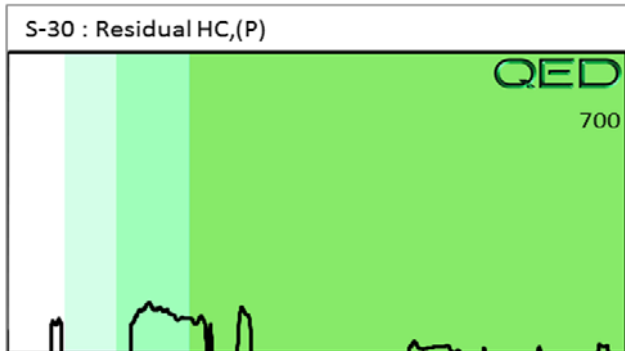
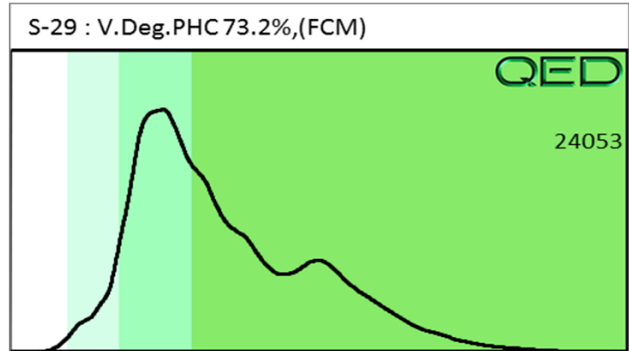
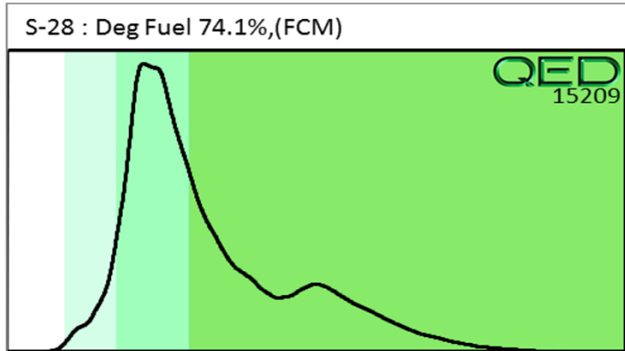
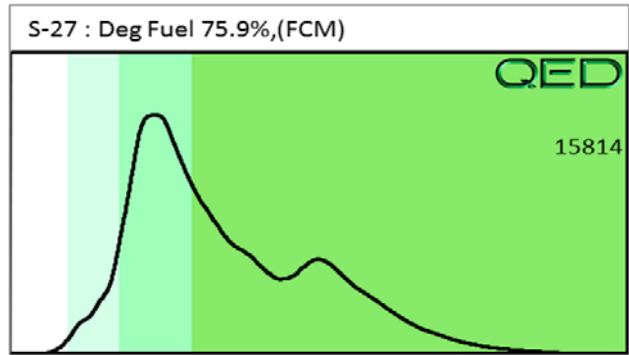
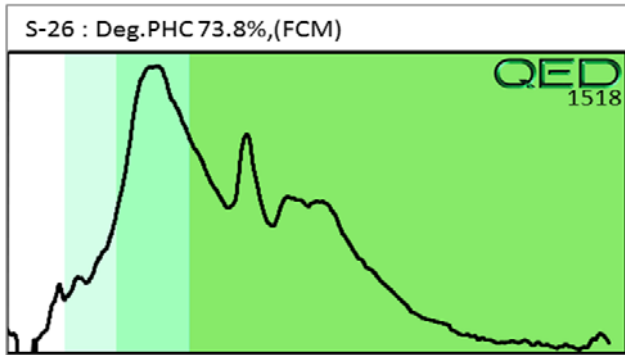
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modified Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser





Client Name:	Sesamur & Associates PC
Address:	165 Knoll Drive Boone, NC 28607
Contact:	Keith Sesamur
Project Ref.:	NC DOT U-5888 A012
Email:	sesamur@jcland.com
Phone #:	(828) 264-0289
Collected by:	Joey Anderson



RAPID ENVIRONMENTAL DIAGNOSTICS
CHAIN OF CUSTODY AND ANALYTICAL
REQUEST FORM

RED Lab, LLC
5598 Marvin K Moss Lane
MARBIONC Bldg, Suite 2003
Wilmington, NC 28409

Each sample will be analyzed for
BTEX, GRO, DRO, TPH, PAH total
aromatics and BaP

Sample Collection Date/Time	TAT Requested		Initials	Sample ID	Total Wt.	Tare Wt.	Sample Wt.
	24 Hour	48 Hour					
10/23/18 11:13		X	JBA	S-16	52.2	43.9	8.3
10/23/18 11:16		X	JBA	S-17	51.6	44.1	7.5
10/23/18 11:19		X	JBA	S-18	52.2	43.9	8.3
10/23/18 11:21		X	JBA	S-19	54.7	44.0	10.7
10/23/18 11:24		X	JBA	S-20	50.1	43.7	6.4
10/23/18 11:27		X	JBA	S-21	53.4	43.6	9.8
10/23/18 11:35		X	JBA	S-22	52.4	43.7	8.7
10/23/18 11:38		X	JBA	S-23	52.8	44.0	8.8
10/23/18 11:42		X	JBA	S-24	51.1	44.1	7.0
10/23/18 11:49		X	JBA	S-25	53.7	43.8	9.9
10/23/18 11:53		X	JBA	S-26	53.5	44.4	9.1
10/23/18 11:58		X	JBA	S-27	51.5	44.5	7.0
10/23/18 12:01		X	JBA	S-28	54.3	44.2	10.1
10/23/18 12:06		X	JBA	S-29	55.5	44.2	11.3
10/23/18 12:09		X	JBA	S-30	50.2	44.1	6.1
10/23/18 12:15		X	JBA	S-31	54.8	44.1	10.7
10/23/18 12:18		X	JBA	S-32	55.5	43.8	11.7
10/23/18 12:22		X	JBA	S-33	53.5	43.8	9.7
10/23/18 12:26		X	JBA	S-34	50.2	43.6	6.6

Comments: *Methanol Leak

RED Lab USE ONLY

Relinquished by	Date/Time	Accepted by	Date/Time
	10/24/18 12:30	Fed Ex	10/24/18 12:30
Relinquished by	Date/Time	Accepted by	Date/Time
			10/25 12:00

19

Appendix C

Documents from NCDEQ Incident Files



Waste Management
ENVIRONMENTAL QUALITY

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

MICHAEL SCOTT
Director

July 18, 2017

Mr. Art Neergaard
Clifford Gould, LLC
393 Oregon Street
Cincinnati, OH 45202

Re: Notice of No Further Action
M&D Collision Waste Oil
871 North Main Street, Waynesville
Haywood County
Incident Number: 41553
Risk Classification: Low/Industrial Commercial

Dear Mr. Neergaard:

I have reviewed the UST Closure report for the Waste Oil Underground Storage Tank by Partner Engineering of North Carolina, PLLC. According to the report, the analytical results of soil sampling indicate contaminant concentration levels that do not exceed North Carolina's unrestricted use standards. Therefore, no further action is required.

This No Further Action determination only applies to the subject incident; for any other incidents at the subject site, the responsible party must continue to address contamination as required.

This determination shall apply unless the UST Section later finds that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment. Pursuant to Title 15A NCAC 2L .0407(a), the responsible party has a continuing obligation to notify the Department of any changes that might affect the risk or land use classifications that have been assigned.

If you have any questions regarding this notice, please contact me at the address or telephone number listed below.

Sincerely,

Michael Streeter, L.G.
Hydrogeologist
Asheville Regional Office
UST Section, Division of Waste Management, NCDEQ

cc: Wendell K. Johnson, Partner Engineering, 8720 Red Oak Blvd., Ste. 102, Charlotte, NC 28216

Asheville Regional Office – 2090 US Highway 70, Swannanoa, NC 28778 (828) 296-4500

June 22, 2017

Mr. Michael Streeter
Hydrogeologist
North Carolina Department of Environmental Quality –
Underground Storage Tank Section
2090 U.S. Highway 70
Swannanoa, North Carolina 28778-8211

Subject: Underground Storage Tank Closure Report and Site Closure Request
 M&D Collision
 871 North Main Street
 Waynesville, North Carolina 28786
 Partner Project No. 17-182534.1
 NCDEQ UST No: AS-4262 - 41345



Dear Mr. Streeter:

Partner North Carolina, PLLC (Partner) submits the attached Underground Storage Tank (UST) Closure Report and completed Forms UST-2B and UST-3 for the referenced site. This report is submitted on behalf of Clifford Gould LLC, the owner of the subject property, and describes the activities conducted during the removal of an approximately 550-gallon waste-oil UST. Because no targeted analytes were detected in a soil sample collected beneath the tank at concentrations exceeding Commercial/Industrial Maximum Soil Contaminant Concentrations, Partner respectfully requests a determination of No Further Action by the NCDEQ - UST Section.

If you have any questions concerning this report, please feel free to contact us at 800-419-4923.

Sincerely,


Wendell K. Johnson
Senior Project Manager


Kristine M. MacWilliams, PE
Technical Director – Subsurface Investigation


Attachments:

Form UST-2B
Form UST-3
UST Closure Report

RECEIVED

JUN 26 2017

**UST SECTION
ASHEVILLE REGIONAL OFFICE**

UST-2B

Site Investigation Report for Permanent Closure or Change-in-Service of UN-REGISTERED UST



Return completed form to:

**NC DEQ / DWM / UST SECTION
1646 MAIL SERVICE CENTER
RALEIGH, NC 27699-1646
ATTN: REGISTRATION & PERMITTING**

phone (919) 707-8171 fax (919) 715-1117 <http://www.wastenotnc.org/>

Facility ID #

STATE USE ONLY:

Date Received

INSTRUCTIONS (READ THIS FIRST)

- UST permanent closure or change in service must be completed in accordance with the latest version of the Guidelines for Site Checks, Tank Closure and Initial Response and Abatement. The guidelines can be obtained at <http://deq.nc.gov/about/divisions/waste-management/waste-management-permit-guidance/underground-storage-tanks-section>.
- Permanent closure: Complete all sections of this form.
- Change-in-service: Where UST systems will be converted from storing a regulated substance to a non-regulated substance, complete sections I, II, III, IV, and VI.
- For more than 5 un-registered UST systems, attach additional forms as needed.
- Un-Registered USTs may be subject to unpaid fees and late penalties.**
- REGISTERED USTs use Form UST-2A.

I. OWNERSHIP OF TANKS

Owner Name (Corporation, Individual, Public Agency, or Other Entity)

Clifford Gould LLC

Street Address

393 Oregon Street

City

Cincinnati

County

State

Ohio

Zip Code

45202

Phone Number

(513) 702-4879

II. LOCATION OF TANKS

Facility Name or Company

M&D Collision

Facility ID # (If known)

Street Address

871 North Main Street

City

Waynesville

County

Haywood

Zip Code

28786

Phone Number

(828) 452-0171

III. CONTACT PERSONNEL

Contact for Facility:

Art Neergaard

Job Title:

Owner

Phone #:

Closure Contractor Name:

Herr Environmental

Closure Contractor Company:

Address:

Tabor City, NC

Phone #

(910) 653-6399

Primary Consultant Name:

Kristine MacWilliams

Primary Consultant Company:

Partner ESI

Address:

Charlotte, NC

Phone #

800-419-4923

IV. UST INFORMATION FOR UN-REGISTERED UST SYSTEMS

REGISTERED USTs use Form UST-2A.

V. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Last Contents	Last Use Date	Permanent Close Date	Method of Permanent Closure: Indicate REMOVED or enter fill material, such as foam/ concrete/ sand	Change-in-Service Date	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
WO-1	500	Waste Oil	Unk	5/31/17	Removed		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VI. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true accurate and complete.

Print name and official title of owner or owner's authorized representative

Kristine MacWilliams, PE

Signature

Kristine MacWilliams

Date Signed

06/22/2017

UST-3 Notice of Intent: UST Permanent Closure or Change-in-Service

Return completed form to:

The DWM Regional Office located in the area where the facility is located. Send a copy to the Central Office in Raleigh so that the status of the tank may be changed to "PERMANENTLY CLOSED" and your tank fee account can be closed out. SEE MAP ON THE BACK OF THIS FORM FOR THE CENTRAL AND REGIONAL OFFICE ADDRESSES.

STATE USE ONLY

I.D. # _____

Date Received _____

INSTRUCTIONS (READ THIS FIRST)

Complete and return at least **thirty (30) days** prior to closure or change-in-service activities. If a Professional Engineer (P.E.) or a Licensed Geologist (L.G.) provides supervision for closure or change-in-service site assessment activities and signs and seals all closure reports then at least a **five (5) working days** notice is acceptable.

Completed UST closure or change-in-service site assessment reports, along with a copy of the UST-2 form, should be submitted to the appropriate Division of Waste Management (DWM) Regional Office within thirty (30) days following closure activities. The UST-2 form should also be submitted to the Central Office in Raleigh so that the status of the tanks may be changed to permanently closed and your tank fee account can be closed out.

UST closure and change-in-service site assessments must be completed in accordance with the latest version of the *Guidelines for Site Checks, Tank Closure and Initial Response*. The guidelines can be obtained at <http://www.wastenotnc.org/web/wm/>. Note: To close tanks in place you must obtain prior approval from the DWM Regional office located in the region where the facility is located.

You must make sure that USTs removed from your property are disposed of properly. When choosing a closure contractor, ask where the tank(s) will be taken for disposal. Usually, USTs are cleaned and cut up for scrap metal. This is dangerous work and must be performed by a qualified company. Tanks disposed of illegally in fields or other dumpsites can leak petroleum products and sludge into the environment. If your tanks are disposed of improperly, you could be held responsible for the cleanup of any environmental damage that occurs.

I. OWNERSHIP OF TANKS		II. LOCATION		
Owner Name (Corporation, Individual, Public Agency, or Other Entity) <u>Clifford Gould LLC</u>		Facility Name or Company <u>M&D Collision</u>		
Street Address <u>393 Oregon Street</u>		Facility ID # (If known)		
City <u>Cincinnati</u>	County	Street Address <u>871 North Main Street</u>		
State <u>Ohio</u>	Zip Code <u>45202</u>	City <u>Waynesville</u>	County <u>Haywood</u>	Zip Code <u>28786</u>
Phone Number <u>(513) 702-4879</u>		Phone Number <u>(828) 452-0171</u>		

III. CONTACT PERSONNEL

Name: <u>Art Neergaard</u>	Company Name: <u>Clifford Gould LLC</u>	Job Title: <u>Owner</u>	Phone Number: <u>(513) 702-4879</u>
-------------------------------	--	----------------------------	--

IV. TANK REMOVAL, CLOSURE IN PLACE, CHANGE-IN SERVICE

- | | | |
|--|--|---|
| <ol style="list-style-type: none"> Contact local fire marshal. Plan entire closure event. Conduct Site Soil Assessment. If removing tanks or closing in place, refer to API Publication 2015 <i>Cleaning Petroleum Storage Tanks</i> and 1604 <i>Removal and Disposal of Used Underground Petroleum Storage Tanks</i>. | <ol style="list-style-type: none"> Provide a sketch locating piping, tanks and soil sampling locations. Submit a closure report in the format of UST-12 (including the form UST-2) within thirty (30) days following the site investigation. If a release from the tanks has occurred, the site assessment portion of the tank closure must be conducted under the supervision of | <ol style="list-style-type: none"> a P.E. or L.G., with all closure site assessment reports bearing the signature and seal of the P.E. or L.G. If a release has not occurred, the supervision, signature or seal of a P.E. or L.G. is not required. Keep closure records for three (3) years. |
|--|--|---|

V. WORK TO BE PERFORMED BY

Contractor Name:		Contractor Company Name: <u>HERR Environmental</u>		
Address:		State: <u>NC</u>	Zip Code:	Phone No: <u>(910) 653-6399</u>
Primary Consultant Name: <u>Kristine MacWilliams, PE</u>		Primary Consultant Company Name: <u>Partner ESI</u>		Consultant Phone No: <u>(800)-419-4923</u>

VI. TANKS SCHEDULED FOR CLOSURE OR CHANGE-IN-SERVICE

Tank ID No.	Size in Gallons	Last Contents	Proposed Activity		
			Closure		Change-In-Service New Contents Stored
			Removal	Abandonment in Place *	
<u>WO-1</u>	<u>500</u>	<u>Waste-Oil</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	

* Prior written approval to abandon a tank in place must be received from a DWM Regional Office.

VII. OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

I understand that I can be held responsible for environmental damage resulting from the improper disposal of my USTs.

Print name and official title: Kristine MacWilliams, PE


	Date Signed	SCHEDULED REMOVAL DATE	Notify your DWM Regional Office 48 hours before this date if scheduled removal date changes
	<u>06/22/17</u>		

Table 1: Summary of Investigation Scope
M and D Collision
871 North Main Street
Waynesville, North Carolina 28786
Partner Project Number 17-182534.1
May 31, 2017

Boring Identification	Location	Matrix Sampled	Sampling Depth* (feet bgs)	Target Contaminants
WO-1	Exterior north side of on-site building at the base of former waste-oil UST tankhold	Soil	6	VOCs, SVOCs, Trivalent Chromium, Hexavalent Chromium, Lead, VPH, and EPH

Notes:

bgs = below ground surface

EPH = Extractable petroleum hydrocarbons

SVOCs = Semi-volatile organic compounds

VOCs = Volatile organic compounds

VPH = Volatile petroleum hydrocarbons

Table 2: Summary of Soil Sample Laboratory Results
M and D Collision
871 North Main Street
Waynesville, North Carolina 28786
Partner Project Number 17-182534.1
May 31, 2017

Chemical of Concern	Soil-to-Water MSCCs	Comm/Ind MSCCs	WO-1
VOCs via 8260B (mg/kg)			
VOCs	Various	Various	ND
SVOCs via 8270D (mg/kg)			
SVOCs	Various	Various	ND
Hexavalent Chromium via 6010 (mg/kg)			
Chromium, Hexavalent	5.4	1,226	<5.2
Trivalent Chromium via 6010 (mg/kg)			
Chromium, Trivalent	4,200	613,200	54.2
Lead via 6010 (mg/kg)			
Lead	270	400	67.2
VPH/EPH via MADEP (mg/kg)			
C5-C8 Aliphatics	68	24,528	<4.1
C9-C18 Aliphatics	540	40,000	<27.3
C19-C36 Aliphatics	Considered Immobile	810,000	76.7
C9-C22 Aromatics	31	12,264	20.7

Notes:

* Health-based levels > 100%

mg/kg = milligram per kilogram

Comm/Ind = Commercial / Industrial

MSCCs = Maximum Soil Contaminant Concentrations

ND = Not Detected

< = analyte not detected above the indicated laboratory reporting limit

SVOCs = Semi-volatile organic compounds

VOCs = Volatile organic compounds

MADEP = Massachusetts Department of Environmental Protection



PARTNER

Engineering and Science, Inc.
 8720 Red Oak Boulevard, Suite 102
 Charlotte, North Carolina 28217

Project Number: 17-182534.1



Subject Property



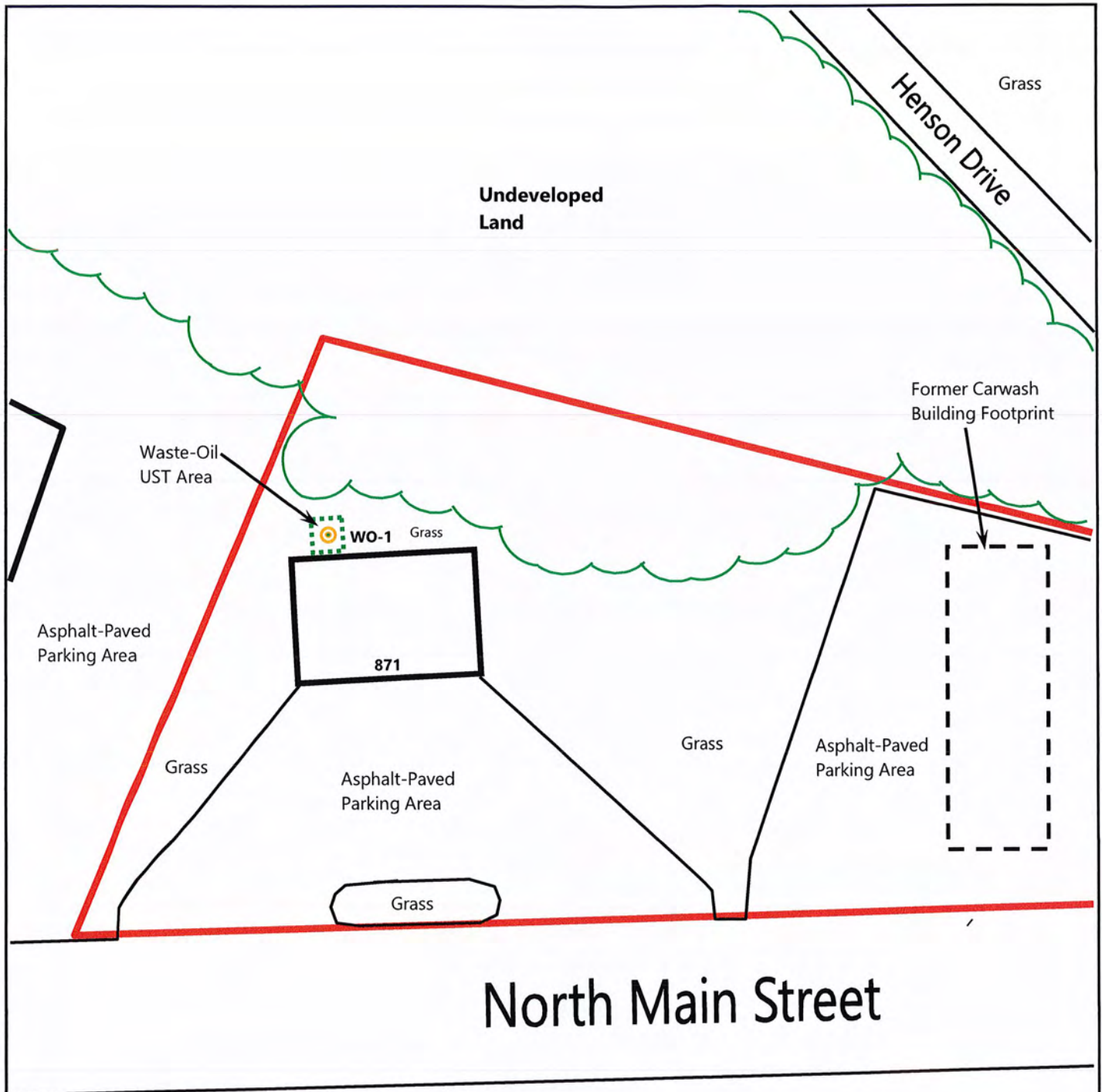
Former UST
 Tankhold Area



SITE PLAN

Figure	Prepared By	Date
1	WKJ	June 2017

M&D Collision
 871 North Main Street
 Waynesville, North Carolina 28786



Scale
1" = 30'

Commercial

PARTNER

Engineering North Carolina, PLLC
8720 Red Oak Boulevard, Suite 102
Charlotte, North Carolina 28217

Project Number: 17-182534.1



LEGEND

- Subject Property
- Soil Borings
- Former UST Tankhold

SAMPLE LOCATIONS MAP

Figure	Prepared By	Date
3	WKJ	June 2017

M&D Collision
871 North Main Street
Waynesville, North Carolina 28786



Environmental
Quality

1/14/16

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

January 14, 2016

Mr. Art Neergaard
Clifford Gould, LLC
393 Oregon Street
Cincinnati, OH 45202

Re: Notice of No Further Action
M&D Collision
871 North Main Street, Waynesville
Haywood County
Incident Number: 41345
Risk Classification: Low/Industrial Commercial

Dear Mr. Neergaard:

On January 13, 2016, the UST Section received a certified copy of the Notice of Residual Petroleum which is filed with the Haywood County Register of Deeds and proof that public notice requirements have been met. **As all required actions have been completed, the Underground Storage Tank (UST) Section determines that no further action is warranted for this incident.**

This determination shall apply unless the UST Section later finds that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment. Pursuant to Title 15A NCAC 2L .0407(a), the responsible party has a continuing obligation to notify the Department of any changes that might affect the risk or land use classifications that have been assigned.

Be advised that as groundwater contamination exceeds the groundwater quality standards established in Title 15A NCAC 2L .0202, groundwater within the area of contamination or within the area where groundwater contamination is expected to migrate is not suitable for use as a water supply.

If you have any questions regarding this notice, please contact me at the address or telephone number listed below.

Sincerely,

Michael Streeter, L.G.
Hydrogeologist
Asheville Regional Office
UST Section, Division of Waste Management, NCDEQ

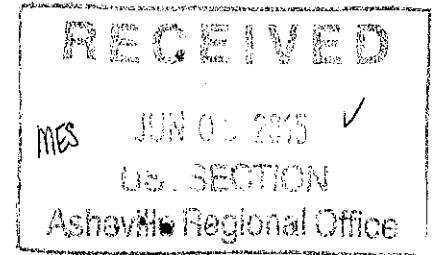
cc: Michael McKenna, Partner Engineering, 8000 Corporate Center Drive, Charlotte, NC 28226

Asheville Regional Office – 2090 US Highway 70, Swannanoa, NC 28778 (828) 296-4500

PARTNER

June 1, 2015

Mr. Michael Streeter
Hydrogeologist
NCDENR – UST Section
2090 U.S. Highway 70
Swannanoa, North Carolina 28778-8211



Subject: Phase I Limited Site Assessment
M&D Collision
871 North Main Street
Waynesville, North Carolina 28786
Partner Project No. 14-127256.3

Dear Mr. Streeter:

Partner North Carolina, PLLC (Partner) is pleased to submit the attached Phase I Limited Site Assessment (LSA) and UST 61 Form for the referenced site. This report is submitted on behalf of Clifford Gould, LLC, the owner of the property, and describes the activities conducted and the results of the LSA. Because the subject property meets the criteria for a Low Risk classification, groundwater impacts are below the Gross Contamination Levels, and soil impacts are below the Soil-to-Groundwater, Commercial/Industrial, and Residential Maximum Soil Contaminant Concentrations, Partner respectfully requests a determination of No Further Action by UST Section.

If you have any questions concerning this report, please feel free to contact us at 800-419-4923.

Sincerely,

A handwritten signature in black ink, appearing to read "M. McKenna".

Michael McKenna
Project Manager

A handwritten signature in black ink, appearing to read "Aaron Epstein".

Aaron Epstein, PG
Regional Manager – Subsurface Investigation

A handwritten signature in black ink, appearing to read "Kristine MacWilliams".

Kristine MacWilliams, P.E.
Technical Director

Attachments

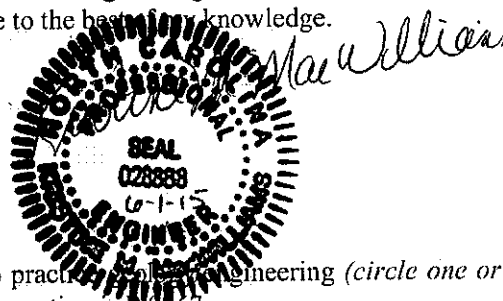
3.0 SITE IDENTIFICATION

A. Site Information

Date of Report: May 29, 2015
Facility I.D.: Not Assigned Incident Number: Not Assigned Site Risk: Low
Site Name: M&D Collision
Site Street Address: 871 North Main Street
City/Town: Waynesville Zip Code: 28786 County: Haywood
Description of Geographical Data Point (e.g., dispenser): Former heating oil UST tankhold
Location Method (GPS, topographical map, other): Google Earth
Latitude (decimal degrees): 35.497805 Longitude (decimal degrees): -82.978461
UST/AST Owner: Clifford Gould, LLC
Address: 393 Oregon Street, Cincinnati Ohio 45202 Tel: 513-702-4879
UST/AST Operator: N/A
Address: _____ Tel: _____
Other Person Associated with Release: N/A
Address: _____ Tel: _____
Property Owner: Clifford Gould, LLC
Address: 393 Oregon Street, Cincinnati Ohio 45202 Tel: 513-702-4879
Property Occupant: Marlin Hollingsworth, proprietor of M&D Collision
Address: 871 North Main Street, Waynesville, North Carolina 28786 Tel: _____
Consultant/Contractor: Partner North Carolina, PLLC
Address: 8000 Corporate Center Drive, Suite 104, Charlotte, NC 28226 Tel: (704) 754-9520
Analytical Laboratory: Pace Analytical Services, Inc. State Certification No. 37706
Address: 9800 Kincey Avenue, Suite 100, Huntersville, NC 28078 Tel: (704) 875-9092

Date Discovered: January 23, 2015
Estimated Quantity of Release: Unknown
Cause of Release: Unknown
Source of Release: Heating oil UST
Sizes and Contents of Tank or Other Containment from which the Release Occurred:
Heating oil/1,000 gallon

I, Kristine M. MacWilliams, a Professional Engineer for Partner Engineering North Carolina, PLLC, do certify that the information contained in this report is correct and accurate to the best of my knowledge.



Partner Engineering North Carolina, PLLC is licensed to practice professional engineering (circle one or both) in North Carolina. The certification number of the company or corporation is P-0867.

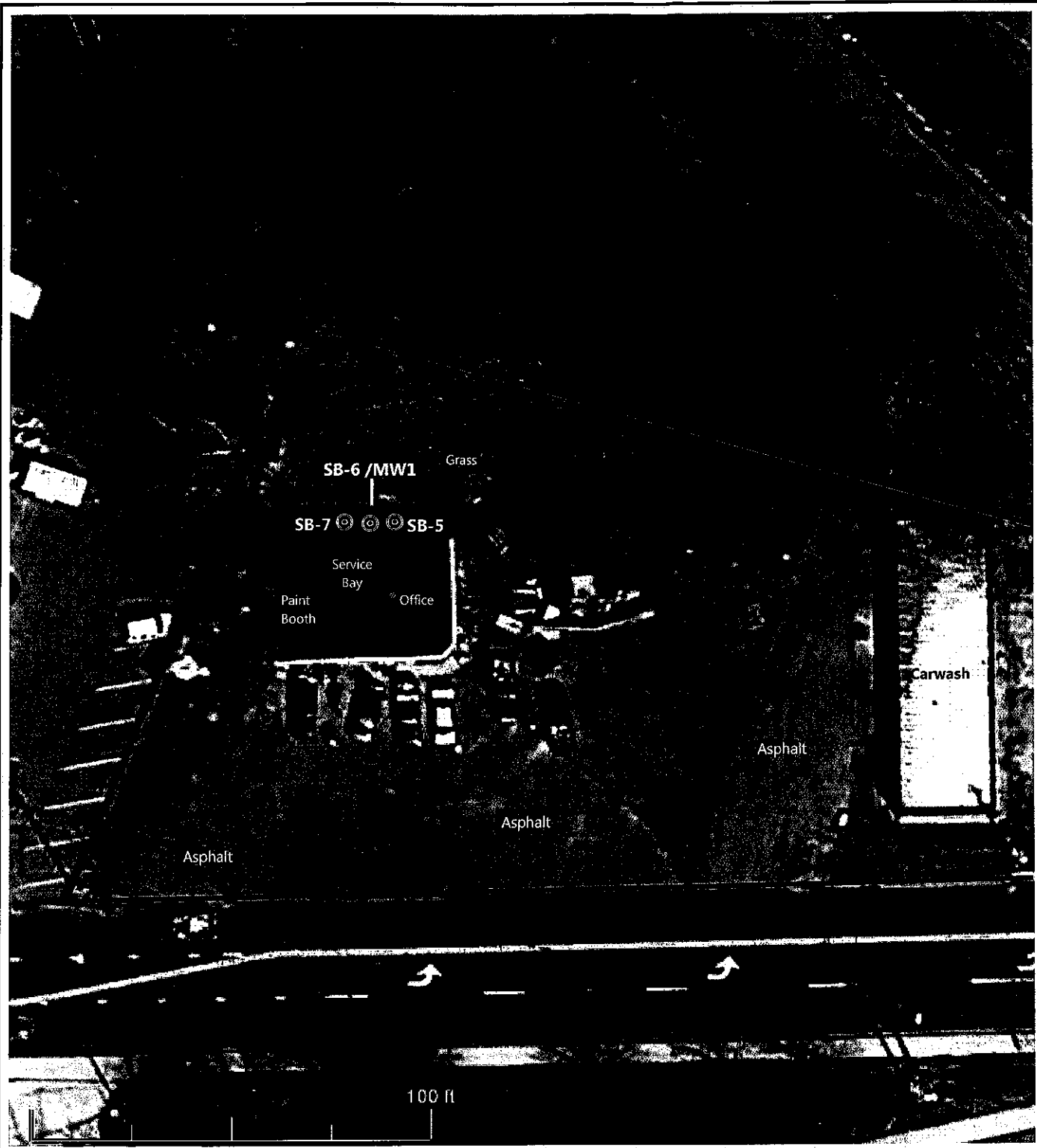





FIGURE 3: SOIL AND GROUNDWATER SAMPLE LOCATION MAP

Site Address:
 M&D Collision
 871 North Main Street
 Waynesville, North Carolina 28278



LEGEND

- Subject Property 
- UST Area 
- Sample Location 

PARTNER
 Engineering and Science, Inc.

www.PARTNEResi.com
 (800) 419-4923
 Project No. 14-127256.3

Table B-1: Site History – UST/AST System and Other Release Information

Revision Date: May 28, 2015 Incident Number and Name: M&D Collision

UST ID Number	Current/Last Contents *	Previous Contents *	Capacity (in gallons)	Construction Details **	Tank Dimensions	Description of Associated Piping and Pumps	Date Tank Installed	Status of UST ***	Was release associated with the UST System?
None Assigned	Heating Oil	Heating Oil	Approx. 550	Unknown	46" x 76"	Unknown	1950s	Removed-1996	Yes

Add additional records as necessary

AST ID Number	Current/Last Contents *	Previous Contents *	Capacity (in gallons)	Construction Details **	Tank Dimensions	Description of Associated Piping and Pumps	Date Tank Installed	Status of AST ***	Was release associated with the AST System?

Add additional records as necessary

Incident Number	Material Released	Date of Release	Description of Release
None	Heating Oil	Unknown	Release discovered during Limited Phase II Subsurface Investigation

Table B-2: Site History - UST/AST Owner/Operator and Other Responsible Party Information

Revision Date: 5/28/2015 Incident Number and Name: M&D Collision

UST ID Number	None Assigned			Facility ID Number	None Assigned	
Name of Owner				Dates of Operation		
Clifford Gould, LLC				1950s-1990s		
Street Address						
393 Oregon Street						
City		State	Zip	Telephone Number		
Cincinnati		OH	45202	513-702-4879		
Name of Operator				Dates of Operation (mm/dd/yy to mm/dd/yy)		
Clifford Gould, LLC				1950s-1990s		
Street Address						
393 Oregon Street						
City		State	Zip	Telephone Number		
Cincinnati		OH	45202	513-702-4879		
Incident Number	None Assigned					
Name of Other Responsible Party				Dates of Release(s) (mm/dd/yy to mm/dd/yy)		
N/A						
Street Address						
City		State	Zip	Telephone Number		

Table B-3: Summary of Soil Sampling Results

Revision Date: 5/28/2015 Incident Number and Name: M&D Collision

Facility ID#: N/A

Analytical Method →					8015	8260	8270	MADEP VPH / EPH			
Contaminant of Concern →					TPH DRO	All Analytes	All Analytes	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
Sample ID	Date Collected (m/dd/yy)	Source Area	Sample Depth (ft BGS)	Incident Phase							
SB-5	1/23/15	UST Pit	10	Initial Investigation	<4.90	NA	NA	NA	NA	NA	NA
SB-6	1/23/15	UST Pit	10	Initial Investigation	11.5	NA	NA	NA	<12.8	<12.8	<12.8
SB-7	1/23/15	UST Pit	10	Initial Investigation	<4.87	NA	NA	NA	NA	NA	NA
MW1-0.5	5/15/15	UST Pit	0.5	Phase I LSA	NA	ND	ND	<3.3	<3.3	<3.3	<3.3
MW1-5.0	5/15/15	UST Pit	5.0	Phase I LSA	NA	ND	ND	<3.3	<3.3	<3.3	<3.3
MW1-5.0D	5/15/15	UST Pit	5.0	Phase I LSA	NA	ND	ND	<3.3	<3.3	<3.3	<3.3
MW1-9.0	5/15/15	UST Pit	9.0	Phase I LSA	NA	ND	ND	<3.3	<3.3	<3.3	<3.3
Minimum Reporting Limit (mg/kg)					4.90	N/A	N/A	3.3	12.8/3.3	12.8/3.3	12.8/3.3
Soil to groundwater MSCC (mg/kg)					N/A	N/A	N/A	68	540	Immobile	31
Residential MSCC (mg/kg)					N/A	N/A	N/A	938	1,500	31,000	469
Industrial/Commercial MSCC (mg/kg)					N/A	N/A	N/A	24,528	40,000	810,000	12,264

Results for contaminants are reported in milligrams per kilogram (mg/kg)

ND = No analytes detected above the laboratory reporting limit

NA = Sample not analyzed for this analyte

N/A = Not applicable

ft. BGS = feet below ground surface

Table B-4: Summary of Groundwater and Surface Water Sampling Results

Revision Date: 5/28/2015 Incident Number and Name: M&D Collision

Facility ID#: N/A

Analytical Method →				602	602	602	602	625	MADEP VPH / EPH			
Contaminant of Concern →				1,2-Dichlorobenzene	1,4-Dichlorobenzene	Naphthalene	Isopropylbenzene	All Analytes	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
Well ID	Date Collected (m/dd/yy)	Sample ID	Incident Phase									
TW-3	1/23/15	TW-3	Initial Investigation	8.25	11.9	95.2	NA	ND	<100	3,723	<94.3	962
MW1	5/15/15	MW1-WT	Phase I LSA	<1.0	<1.0	4.6	1.2	ND	<50	520	<100	468
MW1	5/15/15	MW1-WT DUP	Phase I LSA	<1.0	<1.0	3.8	<1.0	ND	<50	1,102	155	763
Minimum Reporting Limit (µg/l)				1.0/1.0	1.0/1.0	5.0/2.0	1.0	N/A	100/50	572/150	94.3/100	194.3/150
2L Standard (µg/l)				20	6	6	70	N/A	400	700	10,000	200
GCL (µg/l)				20,000	6,000	6,000	25,000	N/A	N/A	N/A	N/A	N/A

Results for contaminants are reported in micrograms per liter (µg/l)

ND = No analytes detected above the laboratory reporting limit

NA = Sample not analyzed for this analyte

N/A = Not applicable

GCL = gross contamination level

Table B-7: Monitoring and Remediation Well Construction Information

Revision Date: 5/28/2015 Incident Number and Name: M&D Collision Facility ID#: NA

Well ID	Date Installed (m/dd/yy)	Date Water Level Measured (m/dd/yy)	Well Casing Diameter (in.)	Well Casing Depth (ft. BGS)	Screened Interval (x to y ft. BGS)	Depth of Well (ft. BGS)	Top of Casing Elevation (ft.)	Depth to Water from Top of Casing (ft.)	Free Product Thickness (ft.)	Groundwater Elevation (ft.)	Latitude/ Longitude (decimal-degrees)
MW-1	5/15/2015	5/15/2015	2	8	8-18	18.00	N/A	13.18**	N/A	N/A	35.497805 / -82.978461

**Does not represent static water depth – was measured immediately after well development.