Weston & Sampson

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Tappe Associates, Inc.
Weston & Sampson Project No. 2160591

October 14, 2016

Mr. Chris Blessen, Principal
Tappe Associates, Inc.
Six Edgerly Place
Boston, MA 02116

Re: **Preliminary Geotechnical Evaluation and Environmental Assessment**
Proposed Wayland Public Library at 195 Main Street
Wayland, Massachusetts

INTRODUCTION

Weston & Sampson Engineers, Inc. (Weston & Sampson) is pleased to present this letter report summarizing our preliminary geotechnical evaluation and environmental assessment for the proposed new Public Library at 195 Main Street in Wayland, Massachusetts (the site). The site is currently occupied by the former Town of Wayland Department of Public Works (DPW) facility. Our services were completed in accordance with our August 8, 2016 agreement.

The site includes a portion of the former Town landfill and burn dump area (Wayland Town Dump). Existing site conditions and the approximate footprint of the former landfill (provided by others) are shown in the attached ***Figure 1***. It is very important to stress that the site contains an unlined, unregulated landfill and that any development on this property needs to abide by the Massachusetts Department of Environmental Protection (MassDEP) Bureau of Waste Prevention rules for developing an inactive landfill.

The landfill is included on the MassDEP's Inactive & Closed Landfills and Dumping list as the Old Wayland Dump (ID# 169033). Based on the information provided in the list (see copy attached), the landfill is not officially closed and MassDEP Bureau of Waste Prevention Solid Waste Division has jurisdiction over activities on the property. To construct a new library on this property, MassDEP will need to be notified of the proposed work. The Solid Waste Regulations have changed since the original evaluations were done and having a landfill on site might require that certain elements, such as landfill gas, be given more consideration for evaluation and possibly abatement in a new building, if needed. At this point, it is difficult to predict what MassDEP will require and how much of the original landfill evaluation conducted by CDM in 2000 they may accept.

Based on an August 24, 2016 Site Plan prepared by Tappe Architects, Inc. (Tappe), we understand that the preferred location for the new library building is on the west side of the site as shown in Figure 1. We also understand that alternate building locations include the northeast and southeast

areas of the site. Alternate proposed locations are not shown in Figure 1. According to Tappe, the preferred and alternate footprints seek to avoid the former landfill area to the maximum extent possible.

We anticipate that our preliminary assessments will be used to evaluate building locations, potential site layouts, and other considerations for design and construction. Accordingly, specific information including building locations and elevations, site grading, utility depths were not developed at the time of this report. We assume that the existing DPW building will be demolished and a new two-story library building will be constructed in one of the proposed building locations with preference given to the west side of the site.

Select soil samples obtained from the geotechnical borings were screened in the field for the presence of volatile organic compounds (VOCs) with a photoionization detector (PID) and submitted to a testing laboratory for preliminary soil disposal characterization analyses. Environmental test details, results and related environmental considerations for the proposed site development are included in the following sections.

SITE OBSERVATIONS AND CONDITIONS

Surface Conditions

The site is located at the former Wayland DPW facility at 195 Main Street in Wayland, Massachusetts. Based on the site property lines shown in a survey plan provided by the Town, the 195 Main Street property also includes the access road to the Wayland Middle School, which is located immediately east of the site. The site is bordered to the west by Main Street and to the south by a wooded area and residential properties.

The site is currently developed with the former DPW building, storage garage, and asphalt concrete (AC) paved parking, driveway, and yard areas as shown in ***Figure 1 – Site Plan***. The south wall of the storage garage and a concrete block retaining wall extending west from the southwest corner of the garage retain up to approximately 5 ft. of grade to the south. A fence and landscape hedges are present between the west side of the yard and Main Street. The southern border of the site is forested with brush and mature trees. Areas between the DPW yard and the school access road to the north and the Middle School to the east are generally landscaped with lawn and trees.

Surface elevations in existing pavement areas surrounding the former DPW building range from El. 160 at a low point northeast of the building to El. 168 at the southwest corner of the yard. Grades increase moderately north, east, and south of the existing yard area to elevations ranging from El. 165 to El. 184 along property lines as shown in Figure 1. Vertical elevations reference the North American Vertical Datum of 1988 (NAVD88).

Geologic Setting

Surficial geology information available from the Massachusetts Office of Geographic Information (Mass GIS) indicates the site is located in an area of coarse grained glacial deposits of sand and gravel overlying glacial till and bedrock at depths of 50 to 100 feet. Bedrock geology is mapped as

quartzite, schist, calc-silicate quartzite, and amphibolite of the Westboro Formation. A bedrock outcrop is mapped approximately 800 ft. northeast of the site immediately east of Keith Road.

Subsurface Explorations

Subsurface conditions were explored on August 8 and 9, 2016, by advancing eight borings (B-1 through B-8) to depths up to 26.0 feet below the existing ground surface (bgs) at the approximate locations shown in the attached ***Figure 1 – Site Plan***. The borings were completed by New England Boring Contractors of Derry, New Hampshire using a track-mounted drill rig.

Standard penetration tests (SPTs) and soil sampling were conducted at intervals of 2 to 5 ft. in each boring by driving a 24 in. long by 1-3/8 in. inside diameter (2 in. outside diameter) split spoon sampler with blows from a 140 lb. cathead operated safety hammer falling 30 in. per blow. Hammer blows per 6 inches of sampler penetration (for 24 inches) were recorded. The blow counts for the middle 12 inches are combined and designated as the SPT blow count, which is correlated to soil consistencies and engineering soil properties.

SPT refusal, where noted in the boring logs, is defined as 100 hammer blows for less than 6 inches of sampler penetration. Auger refusal (encountered in B-7) is defined as at least five minutes of auger grinding with no discernable advancement of the auger flights.

Borings B-1, B-3, and B-5 through B-8 were completed using hollow-stem auger (HSA) drilling methods, which are typically faster than other drilling methods for similar soil conditions, but are less suitable for drilling below the groundwater table in sandy soil conditions due to the potential for soil disturbance at the tip of the casing and heaving of soil into the augers when the bottom plug is removed to allow sampling. Heave generally results in inaccurate SPT blow counts, which are critical in determining the relative density (consistency) and liquefaction potential of sands.

Heave was observed during sampling at some depths in B-1 and B-3 as noted in the attached boring logs. Water was added to the auger casing prior to removing the bottom plug to reduce the potential for heave in these and other HSA borings, but heave was still observed at some depths. Borings B-2 and B-4 were completed using cased drive-and-wash drilling methods, which provide more accurate SPT data in saturated granular sands. The SPT blow counts observed in B-2 and B-4 were generally consistent with those observed in the boring completed using HSA drilling methods.

A Weston & Sampson geotechnical engineer monitored drilling activities in the field and prepared logs for each boring. Three environmental samples (composited from material from multiple borings) and individual (grab) samples from each boring were obtained as described below. Subsurface conditions encountered in our explorations are described in the following paragraphs and in the attached ***Boring Logs***.

Subsurface Conditions

General - Subsurface conditions encountered in the borings generally consisted of 2.5 to 7 inches of AC in existing pavement areas and 2 to 4 inches of topsoil (in B-7 and B-8) overlying SAND FILL

and native strata of SAND, GRAVEL, and SILTY SAND to the depths explored. The subsurface conditions encountered in the borings were generally consistent with the site history and mapped surficial geology.

The SAND FILL encountered in borings B-1 through B-5 and B-8 extended to depths ranging from 3 ft. to 12 ft., ranged from loose to very dense, and generally contained variable amounts of gravel (trace to gravelly), trace to some silt, and trace to some debris including twine, ash, asphalt fragments, and wood. Fill encountered in B-6 extended to a depth of 7.0 ft. and was similar in composition to the aforementioned borings but generally contained more gravel. Boring B-7 encountered SAND FILL similar to the other borings, but with more debris including glass, wood, metal, and rubber tire pieces. Boring B-7 encountered auger refusal on an obstruction at approximately 12.7 ft. and did not penetrate the fill.

The fill was generally underlain by medium dense to very dense SAND with variable amounts of gravel (gravelly to none) and trace to some silt to the depths explored. A stratum of medium dense to very dense GRAVEL with little to some sand and trace silt was encountered between 9.8 ft. and 24 ft. in B-4, below 17 ft. in B-6, and between 6 ft. and 10 ft. in B-8. Dense SILTY SAND with trace gravel and clay was encountered below a depth of 16 ft. to the depth explored in B-2.

Grinding of augers on possible cobbles or boulders was observed at various depths in the fill and native soils in all borings except B-3. Cobbles were observed in auger cuttings at several borings as noted in the attached Boring Logs. An obstruction was encountered at 15.0 ft. in B-1 and drilling refusal was encountered at 12.7 ft. in B-7 as noted above. Based on the soil boring logs, material indicative of a burn dump/landfill was not observed/encountered with the exception of a trace amount of ash in fill soil and in Boring B-7. The location of soil borings was placed around the former burn dump/landfill area since the Town would like to avoid this area for building construction.

Groundwater – Groundwater was observed in borings B-1, B-3, B-5, and B-6 at depths ranging from 11.0 ft. to 13.5 ft. Groundwater was not measured in B-2 and B-4 due to the use of drive-and-wash drilling methods and addition of water to the borehole and was not observed in B-7 and B-8.

We anticipate that groundwater levels will fluctuate with season, variations in precipitation, construction in the area, and other factors. Perched groundwater conditions could exist close to the ground surface, especially during and after extended periods of wet weather.

GEOTECHNICAL CONSIDERATIONS

General

Based on the subsurface conditions encountered in the explorations, the primary geotechnical consideration for the proposed site development and foundation design is the existing undocumented (non-engineered) fill and buried landfill debris. If the alternate building locations on the east side of the site are considered, temporary excavation support may be a consideration depending on the proposed building footprint and elevations relative to existing grades and slopes.

Existing Fill and Debris

The existing undocumented fill and debris observed in all borings up to depths in excess of approximately 13 ft. are not suitable (or allowed by the Massachusetts Building Code) for support of foundations, slabs, or other rigid site improvements that could be adversely affected by differential settlement. The existing fill may provide adequate support of flexible site improvements such as flexible asphalt pavements provided subgrades are adequately prepared and evaluated during construction.

Though not generally observed in the borings, we anticipate that the composition, consistency, and thickness of the fill and landfill debris could be highly variable. It also appears that landfill debris is present at the location of B-7, which is outside the previously defined landfill limits as shown in Figure 1. Additional explorations are recommended as described below to evaluate the extent and thickness of areas of undocumented fill/buried debris and evaluate the most economical foundation alternative or combination of alternatives.

Re-use of existing inorganic fill and native soils suitably free of debris or other deleterious materials and up to approximately 10 percent fines (passing the No. 200 sieve) as Common Borrow and/or Structural Fill may be feasible if properly constructed, monitored, and documented. Fill variability and suitability for re-use should be evaluated by additional explorations and laboratory testing.

FOUNDATION ALTERNATIVES

General

As described above, all borings encountered undocumented fill and buried debris up to depths in excess of approximately 13 ft. and these materials are not suitable for support of foundations or other rigid site improvements. Foundation alternatives therefore include complete removal (over-excavation) of the existing fill/debris and replacement with structural fill and in-situ ground improvement. Based on the fill depths and general composition observed in the borings (excluding the debris observed in B-7), deep foundations will not be an economic alternative to ground improvement.

In areas where native soils are present within a few feet below proposed foundations and slabs, over-excavation and replacement may be the most economical alternative from a geotechnical standpoint. Where the fill and debris extends greater than a few feet below the bottom of footing and slab elevations, ground improvement will likely be more economical. Environmental considerations, such as handling and disposal of surplus debris and impacted soils, may make ground improvement more feasible and economically attractive than over-excavation and replacement, even for shallow fill depths.

Additional geotechnical and environmental explorations, sampling, and analyses will be required in areas of proposed foundations and earthwork (including new parking areas) to further evaluate fill thicknesses, soil/groundwater impacts, and the most cost-effective foundation alternative. On-site reuse of excavated fill materials should be evaluated to reduce costs associated with off-site export.

Over-Excavation and Replacement
In areas where native soils are present within several feet of proposed bottom-of-footing and slab subgrade elevations, the fill could be removed to expose undisturbed native soils and the resulting excavations brought back to proposed grades with structural fill. Over-excavation limits should include the entire zone-of-influence (ZOI) beneath proposed site improvements, which is defined by a plane extending horizontally away from the bottom edges of footings, utilities, and other existing and proposed site improvements a distance of two feet in all directions, then down and away at 1H:1V slopes.

Ground Improvement
Ground improvement involves installation of elements in the existing fill within the ZOI beneath proposed shallow footings, slabs, and other rigid site improvements to improve the soil bearing capacity and limit settlement to acceptable tolerances. Improvement is done in-place and typically without generating significant spoils, which can be a distinct advantage where removal of soils would require special handling and off-site disposal.

Based on the fill composition observed in all borings except B-7, ground improvement at this site can likely be achieved using compacted stone columns (CSC), also known the trademarked names Geopiers™ (Geopier Foundation Company) and Vibro Piers™ (Hayward Baker). Additional explorations should be completed to evaluate the presence of debris, obstructions, organics, and other subsurface conditions that could complicate installation of ground improvement elements.

We recommend that a ground improvement designer/contractor be consulted during design development to confirm feasibility and assist with preliminary cost estimating. The ground improvement designer/contractor will design and install ground improvement elements based on the requirements of a performance based specification (minimum bearing capacity and maximum allowable settlement) prepared by the geotechnical engineer and included in the contract documents. The ground improvement designer may request load information from the structural engineer to optimize the ground improvement design.

Preliminary Foundation Design
Conventional shallow foundations, slabs on-grade, and other rigid site improvements can be supported by undisturbed medium dense (or denser) native sand and gravel, properly constructed structural fill overlying suitable native soils, or by the existing fill following properly designed and constructed ground improvement. An allowable bearing pressure of 4,000 psf can be used for preliminary design of spread footings supporting the building type described above. The allowable bearing pressure can be increased to 6,000 psf to resist temporary wind and seismic loads provided load eccentricities are within the middle third of the footing. Footings should be embedded at least 4 ft. below the nearest proposed adjacent ground surface exposed to freezing.

Additional geotechnical explorations and analyses will be required to evaluate settlement of foundations and slabs and provide recommendations for design and construction of shallow foundations.

PRELIMINARY ENVIRONMENTAL SUMMARY AND RESULTS

As discussed above, the site contains an unlined, incompletely capped landfill according to MassDEP's list of Inactive & Closed Landfills and Dumping. MassDEP will need to be notified of any proposed work at the site and to evaluate potential design and construction considerations. Background and historical information reviewed as part of our assessment included the following:

- Report titled "*Wayland Highway Department, Environmental Investigation of Former Wayland Town Dump*," prepared by Camp Dresser & McKee (CDM), dated February 2000 (revised March 2000).
- Letter titled "*Claypit School Remedial Action Pursuant to MGL Chapter 21E*," from the Massachusetts Department of Environmental Quality Engineering (DEQE) to Wayland Public Schools, dated August 17, 1988.
- Untitled letter regarding the 1988 remedial action at the Claypit School from Wayland Public Schools to the Massachusetts Department of Environmental Protection, dated May 9, 1994.

Review of Prior Environmental Reports for the Property

Weston & Sampson conducted a review of the MassDEP online searchable sites database to evaluate if prior releases of oil/hazardous materials (OHM) occurred at the property. The site address of 195 Main Street was input into the database, which returned one record associated with an observation of petroleum sheen on water in the site storm drainage system in 1998. This condition represented a two-hour notification condition to MassDEP.

Response Action Outcome (RAO) Report – 1999

The release was assessed by the Cygnus group who collected soil, sediment, surface water and groundwater samples. Petroleum concentrations detected in soil were below the most restrictive Method 1 S-1 cleanup standards. Petroleum related constituents were not detected in surface water from the downgradient wetlands and wetland sediment results indicated that site conditions were consistent with background. Only methyl tert-butyl ether (MTBE), an anti-knocking additive to gasoline, was detected in one groundwater sample from three locations at the Site. The detected MTBE concentration was well below the most restrictive Method 1 groundwater cleanup standard (GW-1). Therefore, remediation activities were not required for the release and a class B-1 RAO was submitted to MassDEP in May 1999. In 2001, subsequent to the submittal of the RAO report, MassDEP requested that the Town sample the site groundwater monitoring wells for VOC analysis. The Town retained the Cygnus Group to sample the wells and VOCs were not detected in any of the groundwater samples.

Within the RAO report, a summary of historical environmental conditions of the site was also provided including a description of the vertical and horizontal extent of the landfill as provided below:

"A portion of the property, beginning on the north side of the access drive to the adjacent Junior High School, extending south beneath the driveway to the vicinity of the existing single-story' building on the Site was formerly used as the Town of Wayland landfill. Little or no documentation

was found regarding the former landfill. According to Town officials, the landfill operated in this location from the early 1900's until 1958. The landfill was used almost exclusively for disposal of domestic refuse. Little or no commercial refuse was disposed in the landfill. The disposed refuse was periodically burned. The landfill was reportedly unlined. The horizontal and vertical extent of landfill material is not known. Based upon the recollection of town officials, and upon a review of aerial photographs dated 1942 and 1958, the landfill is believed to have extended from the vicinity of the Highway Department Garage north across the Junior High School access road, and to the east, beneath the current Junior High School parking area. The vertical extent of landfill material is thought to be approximately four to ten feet below ground surface in the area near the catch basins, based upon test borings conducted in 1980 and a test pit dug in 1994."

In addition to the landfill description above, the RAO report stated that several hundreds of virgin-petroleum impacted soil was used as landfill cover material in the eastern portion of the landfill. Three to six feet of sand and gravel was placed above the petroleum impacted soil, which was asphalt paved at the surface. Four former leaching pits associated with bay drains in the building were excavated in 1996 as part of MassDEP's Underground Injection Control program. Petroleum impacted soil was discovered above Reportable Concentrations for S-1 areas beneath the injection pits. This soil was excavated and disposed offsite under a Limited Removal Action (LRA), which means the volume of soil disposed was less than 100 cubic yards. The RAO reported that *"Three 10,000-gallon gasoline and diesel fuel USTs, and two 3,000 gallon USTs used to store #2 fuel oil and waste oil were excavated and removed from the Site in March 1997"*. Field screening by PID and laboratory analysis of excavation soil samples did not indicate any evidence of petroleum contamination of soil in the vicinity of the former USTs. The locations of the former leaching pits and USTs were not provided in the RAO report.

<u>CDM – Environmental Investigation of Former Town Dump, February 2000</u>

The limits of the former Town Dump (landfill) were assessed using an electromagnetic (EM) survey. The report indicates that there are four areas of waste; two landfill pits are located in the field adjacent to the Highway Department Parking Area, one long continuous disposal area in the parking area and adjacent street, and the southeast edge of the parking area is the fourth area as shown in ***Figure 2***. This report also contains results of a soil gas survey for VOCs and landfill gases including hydrogen sulfide, lower explosive limit, carbon dioxide, oxygen and methane. Based on the results, gas concentrations were not elevated above regulatory levels nor were they migrating toward the Highway Department Building.

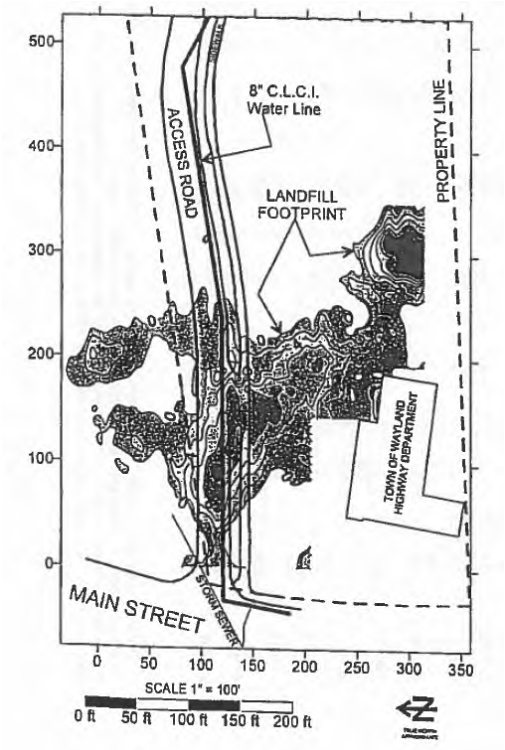

Figure 2 – EM Survey *(CDM, 2000)*

Letter to MassDEP, May 1994

A May 1994 letter to MassDEP for the Town of Wayland was reviewed describing a Notice of Responsibility issued by MassDEP related to a virgin petroleum spill at the Claypit Hill School. The letter described that the spill was remediated by mixing the impacted soil in a pugmill/asphalt emulsion/batching process and using the resulting asphalt to pave the Highway department parking lot. The letter contained an approval for this activity from MassDEP dated August 17, 1988.

PRELIMINARY ENVIRONMENTAL INVESTIGATION

The preliminary environmental investigation was developed to assess soil quality in areas of the site away from the former landfill present in the subsurface of the property. The new library design will also take care to avoid contacting waste associated with the landfill as much as possible. Soil borings were located around the landfill extent to assess surplus soil that could be generated during construction of the new library. The approximate extent of the landfill is shown in Figure 2.

As described above, subsurface conditions were explored on August 8 and 9, 2016, by advancing eight borings (B-1 through B-8) to depths up to 26.0 feet below the existing ground surface (bgs) at the approximate locations shown in the attached ***Figure 1 – Site Plan***. During soil boring advancement, soil was field screened for the presence of VOCs using a properly calibrated PID. Headspace readings indicated very low levels of VOCs in soil (less than 3.6 parts per million by volume) that would not be a concern for soil management during construction. In addition, soil was observed for evidence of potential impacts including odor, sheen or unnatural staining. Evidence of impacts were generally not observed with the exception of trace to little debris and ash in several borings with the exception of B-7, which encountered landfill debris. Based on the soil boring logs and observations, domestic refuse was not encountered in the soil borings conducted during this investigation. PID measurements and observations of impacts are noted in the attached Boring Logs.

A total of three composite soil samples were collected from the fill material observed in the soil borings to evaluate soil quality of potential surplus soil that may be generated during construction. Sample C-1 was collected from borings B-1 and B-2, C-2 was collected from borings B-3 and B-4, and C-3 was collected from borings B-5, B-6, and B-7. Individual grab samples were also obtained from each boring for VOC analysis to prevent volatilization associated with sample compositing. Sampling depths are noted in the Boring Logs. The composite samples were submitted for disposal characterization analyses consistent with Massachusetts Department of Environmental Protection (MassDEP) Policy# COMM-97-001 including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), RCRA-5 metals, and conductivity. Since these soil samples were composited over the full depth of observed fill, soil concentrations within in discrete intervals of the fill may contain higher or lower concentrations. Weston & Sampson recommends a more detailed investigation during the design stage to further assess areas of potential surplus soil generation during construction.

Based on the laboratory results summarized in the attached ***Table 1***, only one polycyclic aromatic hydrocarbon (PAH), 2-methylnapthalene in Sample C-2 (composite sample from borings B-3 and

B-4), exceeded the applicable Reportable Concentrations (RCS-1) for the site. However, PAHs are typically associated with the presence of coal, coal ash or wood ash. Coal was identified/documented by Microvision Laboratories who analyzed the soil matrix from this sample (C-2) and this concentration is therefore exempt from notification in accordance with the MCP 310 CMR 40.0317(9). A copy of the Microvision lab report is attached. Other PAHs and low concentrations of metals (most likely naturally occurring and below RC S-1) were detected in all soil samples. Total Petroleum Hydrocarbons were also detected in all samples at concentrations below the applicable Reportable Concentrations. The concentrations of PAHs and TPH in site soil will require surplus soil management either on site, at a suitable offsite reuse facility in accordance with the MassDEP guidance document entitled *Similar Soils Provision Guidance* (WSC#-13-500), or disposal/recycling at an offsite facility such as a landfill or asphalt batching facility.

ADDITIONAL EXPLORATIONS AND ANALYSES

As described above, additional explorations are recommended to further evaluate the presence, composition, and thickness of undocumented fill and debris underlying proposed site improvements, the presence of obstructions in the fill, and feasibility of ground improvement. Additional explorations will also provide samples for additional environmental and geotechnical laboratory testing to further evaluate potential contamination and re-use of on-site soils as fill. Additional information and analyses will be critical in evaluating the most cost effective approach to site development, earthwork, and foundation construction as well as surplus soil management during construction. Once the design is close to final, we could precharacterize areas of surplus soil generation and identify appropriate disposal facilities for the contractor. We also recommend installation and sampling of groundwater monitoring wells to assess dewatering alternatives as well groundwater quality from an environmental standpoint. In addition, we recommend soil gas screening in the area of the final building location to assess potential vapor intrusion from the landfill. We understand that 2000 CDM report screened vapors at that time, but recommend redoing the screening at this time to account for current conditions and gas meter technology improvements.

We recommend that additional explorations include test pits to further define the lateral extent and composition of the fill materials. Test pits are preferable to borings for these purposes as they allow for better visual observation of shallow subsurface conditions than borings. Additional borings may be required depending on the proposed site layout, building type (loads), elevations, grading, and if the fill encountered in the test pits extends deeper than the limits of excavation equipment. Since the site contains an unlined landfill, construction should avoid any contact with the landfill waste or the clean fill placed above it. Should the final design require work over the landfill, including grading, light poles, utilities, paving etc., this work should be coordinated with MassDEP Bureau of Waste Prevention since the landfill is in their jurisdiction.

LIMITATIONS

We have prepared this preliminary feasibility study for use by Tappe Associates, Inc. and the design and construction teams for this project only. The information herein may be used for preliminary cost

estimating and/or alternative analyses, but is not considered sufficient for design or bidding and should not be construed as a warranty of subsurface conditions. Additional geotechnical explorations and analyses will be required for final design once project details including, but not limited to, site layout, grading, and proposed structure type(s), configurations, and elevations are determined.

We have made observations only at the aforementioned locations and only to the stated depths. These observations do not reflect soil types, strata thicknesses, water levels or seepage that may exist between observations. Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared. No warranty, expressed or implied, is given.

It has been a pleasure assisting you with this project and we look forward to our continued involvement. Please call if you have any questions.

Very truly yours,

WESTON & SAMPSON, INC.

Christopher J. Palmer, PE
Geotechnical Team Leader

Frank Ricciardi, PE, LSP
Vice President

Attachments:

- Site Plan
- Boring Logs (8 pages)
- MassDEP Inactive & Closed Landfills and Dumping List (2 pages)
- Table 1 – Soil Analytical Results (1 page)
- Laboratory Report Package (56 pages)
- Microvison Lab Report

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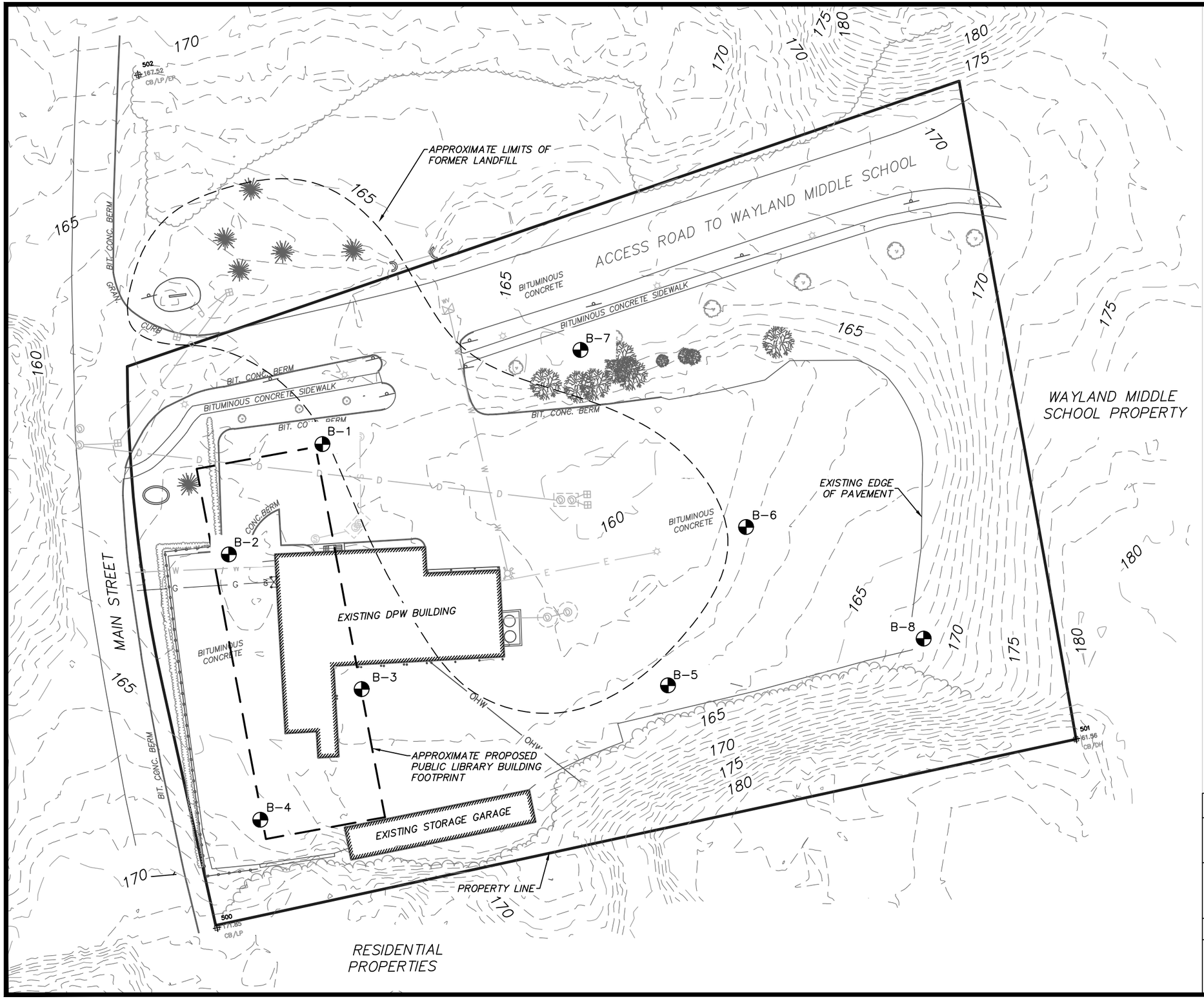

NOTES:

1. THIS DRAWING IS BASED ON A CURRENT EXISTING CONDITIONS PLAN PROVIDED BY THE TOWN OF WAYLAND AND DATED AUGUST 16, 2016. ELEVATIONS REFERENCE NAVD88.
2.
3. BORING LOCATIONS SHOWN ARE BASED ON FIELD MEASUREMENTS RELATIVE TO EXISTING SITE FEATURES. LOCATIONS SHOWN ARE THEREFORE APPROXIMATE.
4. BORINGS WERE COMPLETED BY NEW ENGLAND BORING CONTRACTORS OF DERRY, NEW HAMPSHIRE AND OBSERVED BY A WESTON & SAMPSON GEOTECHNICAL ENGINEER ON SEPTEMBER 8 AND 9, 2016.
5. APPROXIMATE LIMITS OF LANDFILL PROVIDED BY TAPPE ASSOCIATES.

LEGEND:

B–1 BORING NUMBER AND APPROXIMATE LOCATION

N

60 30 0 60 120

SCALE: 1"=60'

FIGURE 1

TAPPE – WAYLAND PUBLIC LIBRARY
FORMER WAYLAND DPW

SITE PLAN

DESIGNED BY: JAE	CHECKED BY: CJP	DATE: SEPTEMBER 2016

Weston & Sampson℠

O:\Tappe Associates\Wayland – Public Library\CAD\Exploration Plan.dwg

Weston & Sampson SM

PROJECT	REPORT OF BORING No.	B-1
Wayland Public Library	SHEET	1 OF 1
Wayland, MA	Project No.	2160591
	CHKD BY	Christopher J. Palmer, PE

BORING Co.	New England Boring Contractors	BORING LOCATION	See attached plan
FOREMAN	Matt Soucy	GROUND SURFACE ELEV.	El. 162 +/- DATUM NAVD88
WSE ENGINEER:	Julie A. Eaton, EIT	DATE START 9/8/16	DATE END 9/8/16

SAMPLER: 2 IN. OD SPLIT SPOON SAMPLER (SPT) DRIVEN 24 INCHES
USING A 140 lb. CATHEAD OPERATED SAFETY HAMMER.
CASING: HOLLOW STEM AUGER DRILLING METHODS
TRACK RIG
CASING SIZE: 4 1/4 IN. INSIDE DIAMETER. OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
9/8/2016		12 ft. +/-	15 ft.	

DEPTH (feet)	CASING (blows/ft)	SAMPLE No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION	NOTES	STRATUM DESCRIPTION
0		S-1	2/18	0.5-2	15-42-29	0.1	Very dense, brown, SAND FILL, some gravel, trace debris (asphalt), trace silt; moist.	1	**7" AC PAVEMENT**
		S-2	7/24	2-4	14-11-10-6	0.2	Medium dense, brown, SAND FILL, little gravel, trace silt, trace debris (asphalt); moist.		
5		S-3	4/24	4-6	11-15-14-12	0.2	Medium dense, brown, SAND FILL, little gravel, trace silt, trace debris (asphalt); moist.		
		S-4	1/24	6-8	20-23-9-7	0.6	Dense, brown SAND FILL, trace silt, some gravel (cobble fragment in tip); moist.		**SAND FILL**
		S-5	4/24	8-10	1-5-2-3	0.4	Loose, dark brown, SAND FILL, some silt, trace gravel, trace debris (twine & ash); moist.	2	
10		S-6	6/24	10-12	6-7-12-8	0.3	Medium dense, dark gray, SAND FILL, some silt, trace debris (fibers), trace gravel; wet.		
		S-7	9/9	12-12.8	38-50/3"	0.5	Dense, brown, fine to coarse SAND, some silt, little gravel; wet.	3 4,5	
15		S-8	7/24	15-17	59-39-58-59		Very dense, brown, gravelly, fine to coarse SAND, trace silt; wet.		**SAND**
20		S-9	7/24	20-22	9-29-40-44		Very dense, brown-gray, gravelly, fine to coarse SAND, trace silt; wet.	6	
25							Boring terminated at 25.0 ft.	7	
30									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1. Auger grinding from 0 to 13.0 ft. Cobbles and coarse gravel observed in cuttings.
2. Sample had a slight unidentified odor.
3. Composite environmental sample taken from 0 to 12.0 ft. Grab sample taken from S-5.
4. Augers tilted on obstruction. Moved ~5 ft. west and re-drilled hole to 15.0 ft.
5. Sporadic auger grinding from 13.0 ft. to 20.0 ft.
6. 1.5 ft. of heave observed. Added water to inside of auger flight to reduce heave.
7. 3.0 ft. of heave observed inside auger flight. No sample collected.

GENERAL NOTES: i) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
ii) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-1

Weston & Sampson

PROJECT	REPORT OF BORING No.	B-2
Wayland Public Library	SHEET	1 OF 1
Wayland, MA	Project No.	2160591
	CHKD BY	Christopher J. Palmer, PE

BORING Co.	New England Boring Contractors	BORING LOCATION	See attached plan
FOREMAN	Matt Soucy	GROUND SURFACE ELEV.	El. 164 +/- DATUM NAVD88
WSE ENGINEER:	Julie A. Eaton, EIT	DATE START 9/8/16	DATE END 9/8/16

SAMPLER: 2 IN. OD SPLIT SPOON SAMPLER (SPT) DRIVEN 24 INCHES USING A 140 lb. CATHEAD OPERATED SAFETY HAMMER.

CASING: DRIVE AND WASH DRILLING METHODS TRACK RIG

CASING SIZE: 4 1/4 IN. INSIDE DIAMETER. OTHER: See note 3.

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME

DEPTH (feet)	CASING (blows/ft)	SAMPLE No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION	NOTES	STRATUM DESCRIPTION
0								1	**4" AC PAVEMENT**
		S-1	3/24	1-3	16-29-41-48	0.1	Very dense, dark brown, fine to coarse SAND FILL, some gravel, little silt; moist.		**SAND FILL**
		S-2	14/24	3-5	46-50-33-75	0.4	Very dense, light brown, gravelly, fine to coarse SAND FILL, trace to little silt; moist.	2	
5		S-3	5/24	5-7	67-33-31-30	0.2	Very dense, light brown, gravelly, SAND, trace silt; moist. Bottom 3" little gravel.		
		S-4	5/24	7-9	29-20-17-17	0.1	Dense, light brown, fine to coarse SAND, some gravel, trace to little silt; moist.		
		S-5	13/24	9-11	18-17-14-12	0.2	Dense, brown, fine to coarse SAND, little gravel, trace silt; moist.		**SAND**
10								3	
		S-6	7/24	14-16	15-12-10-12		Medium dense, brown, fine SAND, little to some silt; wet.		
15									
		S-7	13/24	19-21	16-22-17-22		Dense, brown, fine to medium SILTY SAND, trace gravel, trace clay; wet. Bottom 6": grades to gravelly.	4	**SILTY SAND**
20									
		S-8	0/24	24-26	10-8-22-15		Dense, no recovery. Cobble fragment in tip of spoon.		
25									
							Boring terminated at 26.0 ft.		
30									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1. Auger grinding from 0 to 5.0 ft. Continuous sampling from 5.0 ft. to 11.0 ft. No augers advanced from 5 ft. to 11.0 ft.
2. Composite environmental sample taken from 0 to 11.0 ft. Grab sample taken from S-2.
3. Switched to drive and wash drilling methods with 4 inch casing below 11.0 ft.
4. Roller bit grinding from 18.0 ft. to 19.0 ft. Sporadic roller bit grinding from 19.0 ft. to 24.0 ft.

GENERAL NOTES: i) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
ii) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-2

Weston & Sampson

PROJECT	REPORT OF BORING No.	B-3
Wayland Public Library	SHEET	1 OF 1
Wayland, MA	Project No.	2160591
	CHKD BY	Christopher J. Palmer, PE

BORING Co.	New England Boring Contractors	BORING LOCATION	See attached plan
FOREMAN	Matt Soucy	GROUND SURFACE ELEV.	El. 162+/- DATUM NAVD88
WSE ENGINEER:	Julie A. Eaton, EIT	DATE START 9/8/16	DATE END 9/8/16

SAMPLER: 2 IN. OD SPLIT SPOON SAMPLER (SPT) DRIVEN 24 INCHES
USING A 140 lb. CATHEAD OPERATED SAFETY HAMMER.
CASING: HOLLOW STEM AUGER DRILLING METHODS
TRACK RIG
CASING SIZE: 4 1/4 IN. INSIDE DIAMETER. OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
9/8/2016		13.5 ft. +/-	15 ft.	

DEPTH (feet)	CASING (blows/ft)	SAMPLE No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION	NOTES	STRATUM DESCRIPTION
0									**4" AC PAVEMENT**
		S-1	17/24	1-3	19-26-15-17	0.5	Dense, brown, fine to coarse SAND FILL, little gravel, trace silt, trace debris (asphalt); moist.	1	**SAND FILL**
		S-2	11/24	3-5	14-9-7-10	0.3	Medium dense, brown, fine to coarse SAND, little gravel, trace silt; moist.		
5		S-3	14/24	5-7	7-7-7-7	0.6	Medium dense, brown, fine to coarse SAND, trace silt; moist.	2	
10		S-4	16/24	10-12	6-10-11-9		Medium dense, brown, fine to coarse SAND, trace silt; moist.		**SAND**
15		S-5	17/24	15-17	7-11-11-8		Medium dense, dark brown, fine to coarse SAND, trace to little silt; wet.	3	
							Boring terminated at 17.0 ft.	4	
20									
25									
30									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1. Bottom 6": Brown, fine to coarse SAND, trace gravel, trace silt; moist.
2. Composite environmental sample taken from 0 to 7.0 ft. Grab sample taken from S-3.
3. Added water to inside of auger casing while pulling plug. 1.0 ft. of heave observed.
4. Attempted to take a sample at 17.0 ft.; 5.0 ft. of heave observed. Boring teerminated without sampling.

GENERAL NOTES: i) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
ii) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-3

Weston & Sampson

PROJECT	REPORT OF BORING No.	B-4
Wayland Public Library	SHEET	1 OF 1
Wayland, MA	Project No.	2160591
	CHKD BY	Christopher J. Palmer, PE

BORING Co.	New England Boring Contractors	BORING LOCATION	See attached plan
FOREMAN	Matt Soucy	GROUND SURFACE ELEV.	El. 165.5 +/- DATUM NAVD88
WSE ENGINEER:	Julie A. Eaton, EIT	DATE START 9/8/16	DATE END 9/9/16

SAMPLER: 2 IN. OD SPLIT SPOON SAMPLER (SPT) DRIVEN 24 INCHES USING A 140 lb. CATHEAD OPERATED SAFETY HAMMER.

CASING: DRIVE AND WASH DRILLING METHODS TRACK RIG

CASING SIZE: 4 1/4 IN. INSIDE DIAMETER. OTHER: See note 3.

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME

DEPTH (feet)	CASING (blows/ft)	SAMPLE No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION	NOTES	STRATUM DESCRIPTION
0								1	**4" AC PAVEMENT**
		S-1	7/24	1-3	24-33-18-13	1.3	Very dense, dark brown, SAND FILL, some gravel, little debris (asphalt), trace silt; moist.		**SAND FILL**
		S-2	2/24	3-5	11-11-11-23	1.3	Medium dense, dark brown, SAND FILL, little gravel, little debris (asphalt), trace silt; moist.		
5		S-3	8/24	5-7	21-27-36-42	3.6	Very dense, light brown, gravelly, fine to coarse SAND, trace to little silt; moist.	2	**SAND**
		S-4	15/18	7-8.5	51-67-100/6"	0.3	Very dense, light brown, fine to coarse SAND, little gravel, little silt; moist.	3	
10		S-5	4/10	9-9.8	68-100/4"		Very dense, brown, gravelly, fine to coarse SAND, some silt; wet.	4, 5	
15		S-6	7/24	14-16	41-76-39-32		Very dense, brown, GRAVEL, little sand, trace silt; wet. Bottom 4": gray, cobble fragments.		**GRAVEL**
20		S-7	0/24	19-21	49-27-24-22		Very dense, no recovery.		
25		S-8	8/24	24-26	27-18-15-20		Dense, brown, fine to coarse SAND, some gravel, little silt; wet.		**SAND**
							Boring terminated at 26.0 ft.		
30									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1. Auger grinding from 0 to 5.0 ft. Continuous sampling from 5.0 ft. to 9.0 ft. No augers advanced from 5 ft. to 9.0 ft.
2. Composite environmental sample taken from 0 to 7.0 ft. Grab sample taken from S-3.
3. Cobble fragment observed in tip of sampler.
4. Switched to drive and wash drilling methods with 4 inch casing at 9.0 ft.
5. Roller bit grinding from 9.0 ft. to 12.0 ft. Sporadic roller bit grinding from 12.0 ft. to 24.0 ft.

GENERAL NOTES: i) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
ii) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-4

Weston & Sampson

PROJECT	REPORT OF BORING No.	B-5
Wayland Public Library	SHEET	1 OF 1
Wayland, MA	Project No.	2160591
	CHKD BY	Christopher J. Palmer, PE

BORING Co.	New England Boring Contractors	BORING LOCATION	See attached plan
FOREMAN	Matt Soucy	GROUND SURFACE ELEV.	El. 163 +/- DATUM NAVD88
WSE ENGINEER:	Julie A. Eaton, EIT	DATE START 9/9/16	DATE END 9/9/16

SAMPLER: 2 IN. OD SPLIT SPOON SAMPLER (SPT) DRIVEN 24 INCHES USING A 140 lb. CATHEAD OPERATED SAFETY HAMMER.

CASING: HOLLOW STEM AUGER DRILLING METHODS TRACK RIG

CASING SIZE: 4 1/4 IN. INSIDE DIAMETER. OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
9/9/2016		11.0 ft. +/-	20 ft.	upon termination.

DEPTH (feet)	CASING (blows/ft)	SAMPLE No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION	NOTES	STRATUM DESCRIPTION
0									**2.5" AC PAVEMENT**
		S-1	18/24	1-3	30-25-15-13	0.3	Dense, dark brown, gravelly SAND FILL, some debris (asphalt), trace silt; moist.	1	**SAND FILL**
		S-2	8/24	3-5	11-16-13-15	0.5	Medium dense, brown, fine to medium SAND, trace gravel, trace silt; moist.	2	
5		S-3	13/24	5-7	7-11-10-15	0.2	Medium dense, brown, fine to coarse SAND, trace gravel, trace silt; moist.		
		S-4	12/24	7-9	16-25-23-17		Dense, brown, fine to coarse SAND, some gravel, trace silt; moist.	3, 4	
10		S-5	4/24	10-12	6-7-8-5		Medium dense, brown, gravelly, fine to coarse SAND, trace to little silt; wet.		**SAND**
15		S-6	14/24	15-17	6-14-20-21		Dense, brown, fine to coarse SAND, some gravel, trace silt; wet.	5	
20		S-7	11/24	20-22	9-14-17-16		Dense, brown, fine to coarse SAND, little gravel, trace to little silt; moist. Bottom 2" grades to gravelly.	6	
							Boring terminated at 22.0 ft.		
25									
30									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1. Bottom 6": Brown, fine to medium SAND, trace gravel, trace silt; moist.
2. Composite environmental sample taken from 0 to 7.0 ft. Grab sample taken from S-2.
3. Bottom 5": brown, gravelly, fine to coarse SAND, some silt; moist.
4. Auger grinding from 8.0 ft. to 15.0 ft.
5. Sporadic auger grinding between 15.0 ft. to 20.0 ft.
6. Added water to inside of auger casing while pulling plug to reduce heave.

GENERAL NOTES: i) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
ii) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-5

Weston & Sampson

PROJECT	REPORT OF BORING No.	B-6
Wayland Public Library	SHEET	1 OF 1
Wayland, MA	Project No.	2160591
	CHKD BY	Christopher J. Palmer, PE

BORING Co.	New England Boring Contractors	BORING LOCATION	See attached plan
FOREMAN	Matt Soucy	GROUND SURFACE ELEV.	El. 162 +/- DATUM NAVD88
WSE ENGINEER:	Julie A. Eaton, EIT	DATE START 9/9/16	DATE END 9/9/16

SAMPLER: 2 IN. OD SPLIT SPOON SAMPLER (SPT) DRIVEN 24 INCHES
USING A 140 lb. CATHEAD OPERATED SAFETY HAMMER.
CASING: HOLLOW STEM AUGER DRILLING METHODS
TRACK RIG
CASING SIZE: 4 1/4 IN. INSIDE DIAMETER. OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
9/9/2016		11.0 ft. +/-	9 ft.	

DEPTH (feet)	CASING (blows/ft)	SAMPLE No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION	NOTES	STRATUM DESCRIPTION
0									**3" AC PAVEMENT**
		S-1	12/24	1-3	22-30-20-57	0.5	Very dense, dark brown, gravelly SAND FILL, some debris (asphalt), little silt; moist.	1	
		S-2	1/24	3-4.4	44-26-100/5"	1.8	Very dense, dark brown, GRAVEL FILL, trace silt, trace sand; moist.		**SAND AND GRAVEL FILL**
5		S-3	12/24	5-7	34-64-34-15	1.8	Very dense, brown-gray, fine to coarse SAND FILL, some gravel, trace to little silt; moist.	2	
		S-4	12/24	7-9	14-9-26-33	0.4	Dense, brown, gravelly, fine to coarse SAND, little silt; moist.		
10		S-5	12/24	9-11	14-20-20-18	0.2	Dense, brown, fine to coarse SAND, little gravel, trace silt; moist.	3	
		S-6	9/24	11-13	11-17-17-22		Dense, brown, fine to coarse SAND, some gravel, little to some silt; wet.	4	**SAND**
15		S-7	9/24	15-17	8-14-13-12		Medium dense, brown, fine to coarse SAND, some gravel, little to some silt; wet.		
20		S-8	6/24	20-22	8-8-10-10		Medium dense, brown, fine to coarse GRAVEL, trace sand, trace silt; wet.	5	**GRAVEL**
							Boring terminated at 22.0 ft.		
25									
30									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1. Auger grinding from 0 to 7.0 ft. Auger cuttings comprised mostly of cobbles and gravel.
2. Composite environmental sample taken from 0 to 9.0 ft. Grab sample taken from S-3.
3. Sporadic auger grinding from 9.0 ft. to 20.0 ft.
4. Water level based on observation of wet sample.
5. Added water to inside of auger casing while pulling plug to reduce heave.

GENERAL NOTES: i) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
ii) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-6

Weston & Sampson SM

PROJECT	REPORT OF BORING No.	B-7
Wayland Public Library	SHEET	1 OF 1
Wayland, MA	Project No.	2160591
	CHKD BY	Christopher J. Palmer, PE

BORING Co.	New England Boring Contractors	BORING LOCATION	See attached plan
FOREMAN	Matt Soucy	GROUND SURFACE ELEV.	El. 165 +/- DATUM NAVD88
WSE ENGINEER:	Julie A. Eaton, EIT	DATE START 9/9/16	DATE END 9/9/16

SAMPLER: 2 IN. OD SPLIT SPOON SAMPLER (SPT) DRIVEN 24 INCHES USING A 140 lb. CATHEAD OPERATED SAFETY HAMMER.

CASING: HOLLOW STEM AUGER DRILLING METHODS TRACK RIG

CASING SIZE: 4 1/4 IN. INSIDE DIAMETER. OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
Groundwater not observed.				

DEPTH (feet)	CASING (blows/ft)	SAMPLE No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION	NOTES	STRATUM DESCRIPTION
0		S-1	13/24	0-2	5-14-25-19	0.3	Dense, brown, SAND FILL, little silt, little gravel, trace debris (asphalt); moist.	1	**4" TOPSOIL**
		S-2	8/24	2-4	14-10-5-6	1.6	Medium dense, brown, SAND FILL, little gravel, little silt, little debris (asphalt); moist.		
5		S-3	3/24	4-6	7-10-5-5	1.9	Medium dense, brown, SAND FILL, some gravel, little silt; moist.	2	**SAND FILL WITH DEBRIS**
		S-4	3/24	6-8	5-4-1-2	1.9	Loose, brown, gravelly, SAND FILL, little silt, trace debris (wood); moist.		
		S-5	4/12	8-9	2-WOH/6"	0.4	See note 4.	3,4	
		S-6	3/24	9-11	1-4-3-14	0.2	Loose, dark brown, SAND FILL, some debris (glass, wood), little silt, trace gravel; moist.	5	
10		S-7	6/20	11-12.7	25-13-10-50/2"	0.4	Medium dense, dark brown, SAND FILL, some debris, little gravel, little silt; moist.	6,7 8, 9	
							Auger refusal at 12.7 ft.		
15									
20									
25									
30									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1. Sporadic auger grinding from 0 to 5.0 ft.
2. Auger grinding from 5.0 ft. to 9.0 ft.
3. Possible void and refusal on debris at 9.0 ft. Moved boring ~5 ft. west.
4. Very loose, brown, SAND FILL, some debris (lumber and nails), some gravel, little silt; moist.
5. Sporadic auger grinding from 9.0 ft. to 12.0 ft. Very slow auger advance from 12.0 to 12.7 ft.
6. Debris comprised of wood, glass, and nails.
7. Composite environmental sample taken from 0 to 12.7 ft. Grab sample taken from S-7.
8. Auger cuttings comprised mostly of debris including large chunks of metal and rubber tire.
9. Auger refusal on debris at 12.7 ft. (5 minutes of grinding, no discernable advance).

GENERAL NOTES: i) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
ii) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-7

Weston & Sampson

PROJECT	REPORT OF BORING No.	B-8
Wayland Public Library	SHEET	1 OF 1
Wayland, MA	Project No.	2160591
	CHKD BY	Christopher J. Palmer, PE

BORING Co.	New England Boring Contractors	BORING LOCATION	See attached plan
FOREMAN	Matt Soucy	GROUND SURFACE ELEV.	El. 168 +/- DATUM NAVD88
WSE ENGINEER:	Julie A. Eaton, EIT	DATE START 9/9/16	DATE END 9/9/16

SAMPLER: 2 IN. OD SPLIT SPOON SAMPLER (SPT) DRIVEN 24 INCHES
USING A 140 lb. CATHEAD OPERATED SAFETY HAMMER.
CASING: HOLLOW STEM AUGER DRILLING METHODS
TRACK RIG
CASING SIZE: 4 1/4 IN. INSIDE DIAMETER. OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
9/9/2016		Groundwater not encountered.		

DEPTH (feet)	CASING (blows/ft)	SAMPLE No.	REC/PEN (in)	DEPTH (ft)	BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION	NOTES	STRATUM DESCRIPTION
0		S-1	7/24	0-2	4-7-20-28	0.4	Medium dense, brown,fine to medium SAND FILL, little gravel, little silt; moist.		2" TOPSOIL
		S-2	14/24	2-4	27-25-17-14	0.7	Dense, brown, gravelly, fine to coarse SAND FILL, little silt; moist.	1	SAND FILL
5		S-3	6/24	4-6	17-39-16-13	0.9	Very dense, brown and gray, SAND FILL, little silt, trace gravel, trace debris (wood); moist.	2,3	
		S-4	4/24	6-8	8-8-8-7	0.2	Medium dense, brown and gray, GRAVEL, some sand, trace silt; moist.	3	GRAVEL
		S-5	1/24	8-10	8-8-10-26	1.6	Medium dense, brown, GRAVEL, trace sand, trace silt; moist.		
10		S-6	8/24	10-12	10-22-22-19		Dense, brown, gravelly, fine to coarse SAND, little silt; moist.		SAND
		S-7	13/24	12-14	20-19-25-21		Dense, brown, gravelly, fine to coarse SAND, trace silt; moist.		
15		S-8	18/24	14-16	18-19-18-13		Dense, brown, gravelly, fine to coarse SAND, trace to little silt; moist.		
							Boring terminated at 16.0 ft.		
20									
25									
30									

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	0-2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

NOTES:
1. Auger grinding from 2.0 to 10.0 ft. Auger cuttings comprised mostly of cobbles and gravel. Trace glass observed in cuttings.
2. Environmental sample taken from 0 to 10.0 ft. but not included in composite sample due to insuficient volume. Grab sample taken from S-3.
3. Cobble fragment in tip of sampler.

GENERAL NOTES: i) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
ii) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-8

Commonwealth of Massachusetts *Bureau of Air & Waste*
Department of Environmental Protection Solid Waste Program

Inactive & Closed Landfills & Dumping

Sorted by Municipality and Facility Name

Facility Master File *September 2015*

Contents:

I. Column Heading Definitions

Acres	Area of Landfill/Dumping Ground Footprint in Acres to two decimal places.
Active Year	Year the the Landfill began disoposing solid waste excludes Dumping Ground.
Classification	CLF – Closed Landfill with Env Monitoring Required; CLFNMN – Closed Landfill with No Env Monitoring Required; ClsdCSU-DG/LF – Closed Dumping Ground/Excavated Landfill; CLSGLF – Closing Landfill with SW25 for Grading & Shaping; CSU-DG/LF – Dumping Ground/Landfill Closure Status Unknown
Close Year	Year the landfill ceased disposing of solid waste.
Closure Status	Condition of final remediation: Landfill (Capped, Excavated, or Incomplete); Dumping Ground (Complete or Incomplete).
DEP Region	DEP's Regional Offices: CE - Central (Worcester), NE - Northeast (Wilmington), SE - Southeast (Lakeville), WE - Western (Springfield).
Facility Address	Physical address of the Facility including street, city/town, state and ZIP.
Facility Name	Name of the Facility.
Facility Phone	Phone number at the Facility.
Inactive Year	Year the landfill ceased disposing of waste; Year the Dumping Ground ceased disposal or was discovered.
Liner	Barrier between the solid waste fill and the underlying soil. Lined indicates that all or some portion of the landfill is lined, while Unlined means that no part of the landfill is lined. Excludes Dumping Grounds.
Municipality	City or Town that the facility is located in.
Open Year	Year the facility began operations.
Reg Obj Account	Regulated Object Account number - identification number for each solid waste operation.
Reporting Contact	Organization that reports to DEP and/or an alternative contact for Responsible Org below; includes organization type, name, address, contact person, and phone number.
Responsible Organization	Organization that pays the annual compliance fee and/or permittee; includes organization type, name and address.
Status	Identifies the Landfill/Dumping Ground's operational status: Inactive - Not not currently disposing of solid waste, Closure incomplete; Closed - Closure complete.
Tons Per Day	Tons Per Day (tpd) of solid waste disposed based on the last operating permit when available (landfill
Waste Category	Category of Waste disposed: MSW (Municipal Solid Waste), C&D Waste, Woodwaste, Ash, Sludge,

Facility Information						Responsible Organization/Reporting Contact	
WASHINGTON	W	173043	MSW	CSU-LF			
WASHINGTON LANDFILL				14.00			
FROST RD				tpd unknwn		Private ANITA BORGNIS	
WASHINGTON, MA 01223		(413)623-9978				FROST RD, WASHINGTON, MA 01223	
Inactive 1971	1977	0	Incomplete	Not Lined			
WATERTOWN	NE	173049	MSW	CSU-DG			
BF GOODRICH LANDFILL				0.67			
COOLIDGE AVE				tpd n/a		Private B F GOODRICH FOOTWEAR DIVISION	
WATERTOWN, MA 02471						36 NICHOLS AVE, WATERTOWN, MA 02172	
Inactive n/a	1982	0	Incomplete	liner n/a			
WATERTOWN	NE	173044	MSW	CSU-LF			
SCA LANDFILL							
ARLINGTON/COOLIDGE HL				tpd unknwn			
WATERTOWN, MA 02471						, ,	
Inactive 0	1971	0	Incomplete	Not Lined			
WATERTOWN	NE	173046	MSW	CSU-LF			
WATERTOWN BEMIS DUMP				15.00			
PLEASANT ST				tpd unknwn		Municipal TOWN OF WATERTOWN	
WATERTOWN, MA 02471						149 MAIN ST, WATERTOWN, MA 02172	
Inactive 0	1965	0	Incomplete	Not Lined			(617)972-6470
WATERTOWN	NE	173047	MSW	CLFNMN			
WATERTOWN GROVE STREET LANDFILL							
166 GROVE ST				tpd unknwn		Municipal TOWN OF WATERTOWN	
WATERTOWN, MA 02472						49 MAIN ST, WATERTOWN, MA 02172	
Closed 0	1975	1976	Capped	Not Lined			(617)972-6470
WATERTOWN	NE	173045	MSW	CSU-LF			
WATERTOWN HIGHLAND AVENUE LANDFILL							
HIGHLAND AVE AND ONLEY ST				tpd unknwn		Municipal TOWN OF WATERTOWN	
WATERTOWN, MA 02472						149 MAIN ST, WATERTOWN, MA 02172	
Inactive 0	1961	0	Incomplete	Not Lined			(617)972-6470
WAYLAND	NE	169033	MSW	CSU-LF			
OLD WAYLAND DUMP							
195 MAIN ST				tpd unknwn		Municipal TOWN OF WAYLAND	
WAYLAND, MA 01778						41 COCHITUATE RD, WAYLAND, MA 01778	
Inactive 1935	1958	0	Incomplete	Not Lined			(508)358-7701
WAYLAND	NE	173053	MSW	CLFNMN			
OLD WAYLAND LANDFILL							
RTE 20				tpd unknwn		Municipal TOWN OF WAYLAND	
WAYLAND, MA 01778						41 COCHITUATE RD, WAYLAND, MA 01778	
Closed 1958	0	1980	Capped	Not Lined			(508)358-7701
WAYLAND	NE	173050	MSW	CSU-LF		Municipal TOWN OF WAYLAND	
WAYLAND SAND HILL LANDFILL				5.00		41 COCHITUATE RD WAYLAND, MA 01778	
484 BOSTON POST RD				99 tpd		Municipal WAYLAND BOARD OF HEALTH	
WAYLAND, MA 01778		(508)358-7910				484 BOSTON POST RD, WAYLAND, MA 01760	
Inactive 1980	2008	0	Incomplete	Lined		GEORGE W RUSSELL, SUPERINTENDENT	(508)358-7910
WEBSTER	CE	363922	MSW	CSU-DG			
JOHN WESTERMAN							
61 SUTTON AVE				tpd n/a			
WEBSTER, MA 01570						, ,	
Inactive n/a	2001	0	Incomplete	liner n/a		JOHN WESTERMAN	

Table 1
Summary of Soil Analytical Results
Tappe Associates - Wayland Public Library
Wayland, Massachusetts

Parameter	Units	Reportable Concentrations (RCs)	SAMPLING LOCATION		
		RCS-1	C-1	C-2	C-3
			9/8/2016	9/8/2016	9/9/2016
Metals					
ARSENIC	mg/kg	20	<2.6	<2.6	**3.6**
CADMIUM	mg/kg	70	**0.41**	**0.41**	**0.47**
CHROMIUM	mg/kg	100	**15**	**13**	**13**
LEAD	mg/kg	200	**21**	**27**	**30**
MERCURY	mg/kg	20	<0.025	**0.046**	**0.029**
PCBs					
Total Arcolors	mg/kg	1	<0.10	<0.11	<0.10
TPHs	mg/kg	1000	**220**	**460**	**570**
VOCs					
BENZENE	mg/kg	2	<0.0019	<0.0020	<0.0030
ETHYLBENZENE	mg/kg	40	<0.0039	<0.0041	<0.0061
METHYL TERT-BUTYL ETHER (MTBE)	mg/kg	0.1	<0.0039	<0.0041	<0.0061
NAPHTHALENE	mg/kg	4	<0.0039	<0.0041	<0.0061
N-PROPYLBENZENE	mg/kg	100	<0.0039	<0.0041	<0.0061
STYRENE	mg/kg	3	<0.0039	<0.0041	<0.0061
TOLUENE	mg/kg	30	<0.0019	<0.0020	<0.0030
M/P-XYLENE	mg/kg	100	<0.0077	<0.0082	<0.012
O-XYLENE	mg/kg	100	<0.0039	<0.0041	<0.0061
PAHs					
ACENAPHTHENE	mg/kg	4	**0.21**	<0.37	<0.18
ACENAPHTHYLENE	mg/kg	1	**0.23**	**1.0**	**0.30**
ANTHRACENE	mg/kg	1000	**0.77**	**1.3**	**0.38**
BENZO(A)ANTHRACENE	mg/kg	7	**1.8**	**2.4**	**0.98**
BENZO(A)PYRENE	mg/kg	2	**1.7**	**2.0**	**0.97**
BENZO(B)FLUORANTHENE	mg/kg	7	**2.0**	**2.4**	**1.1**
BENZO(G,H,I)PERYLENE	mg/kg	1000	**0.83**	**1.1**	**0.73**
BENZO(K)FLUORANTHENE	mg/kg	70	**0.79**	**1.0**	**0.43**
CHRYSENE	mg/kg	70	**1.7**	**2.3**	**0.94**
DIBENZ(A,H)ANTHRACENE	mg/kg	0.7	**0.23**	<0.37	**0.18**
FLUORANTHENE	mg/kg	1000	**3.6**	**4.8**	**1.8**
FLUORENE	mg/kg	1000	**0.42**	**1.4**	<0.18
INDENO(1,2,3-CD)PYRENE	mg/kg	7	**0.93**	**1.1**	**0.70**
2-METHYLNAPHTHALENE	mg/kg	0.7	<0.18	**0.82**	<0.18
NAPHTHALENE	mg/kg	4	<0.18	**0.51**	<0.18
PHENANTHRENE	mg/kg	10	**3.1**	**7.2**	**1.4**
PYRENE	mg/kg	1000	**3.5**	**5.7**	**2.2**

Abbreviations:
PAH = Polycyclic Aromatic Hydrocarbons
PCBs = Polychlorinated Biphenyls
VOCs = Volatile Organic Compounds
TPHs = Total Patroleum Hydrocarbons
mg/kg = milligrams per kilogram
NS = No Standard
NT = Not tested

Notes:
BOLD
BOLD
< = indicates parameter not detected above laboratory method reporting limit, shown

1 = Standards are from Massachusetts Contingency Plan (MCP), 310 CMR 40, April 2014.
2 = Standard is for mixed isomers, MassDEP does not publish standards for individual isomers.

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

September 16, 2016

Frank Ricciardi
Weston & Sampson Engineers MA
5 Centennial Drive
Peabody, MA 01960

Project Location: Wayland Public Library (TAPPE)
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 16I0369

Enclosed are results of analyses for samples received by the laboratory on September 9, 2016. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Weston & Sampson Engineers MA
5 Centennial Drive
Peabody, MA 01960
ATTN: Frank Ricciardi

REPORT DATE: 9/16/2016

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 16I0369

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Wayland Public Library (TAPPE)

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
C-1	16I0369-01	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 6010C-D	
				SW-846 7471B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8260C	
				SW-846 8270D	
C-2	16I0369-02	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 6010C-D	
				SW-846 7471B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8260C	
				SW-846 8270D	
C-3	16I0369-03	Soil		SM 2540G	
				SM21-22 2510B Modified	
				SW-846 6010C-D	
				SW-846 7471B	
				SW-846 8082A	
				SW-846 8100 Modified	
				SW-846 8260C	
				SW-846 8270D	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

16I0369-01[C-1], 16I0369-02[C-2], 16I0369-03[C-3]

SW-846 8100 Modified

Qualifications:

MS-19

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

Analyte & Samples(s) Qualified:

TPH (C9-C36)

B158063-MS1, B158063-MSD1

S-01

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

o-Terphenyl

16I0369-02[C-2], 16I0369-03[C-3], B158063-MS1, B158063-MSD1

SW-846 8260C

Qualifications:

L-07

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:

Acetone

B158230-BS1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane

16I0369-01[C-1], 16I0369-02[C-2], 16I0369-03[C-3], B158230-BLK1, B158230-BS1, B158230-BSD1

SW-846 8270D

Qualifications:

S-07

One associated surrogate standard recovery is outside of control limits but the other(s) is/are within limits. All recoveries are > 10%.

Analyte & Samples(s) Qualified:

p-Terphenyl-d14

B158064-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Bis(2-Ethylhexyl)phthalate

16I0369-01[C-1], 16I0369-02[C-2], 16I0369-03[C-3], B158064-BLK1, B158064-BS1, B158064-BSD1

Di-n-octylphthalate

16I0369-01[C-1], 16I0369-02[C-2], 16I0369-03[C-3], B158064-BLK1, B158064-BS1, B158064-BSD1

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SW-846 6010C/D SW-846 6020A/B

For NC, Metals methods SW-846 6010D and SW-846 6020B are followed, and for all other states methods SW-846 6010C and SW-846 6020A are followed.

SW-846 8100 Modified

TPH (C9-C36) is quantitated against a calibration made with a diesel standard.

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for “difficult analytes” where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

SW-846 8270D

Laboratory control sample recoveries for required MCP Data Enhancement 8270 compounds were all within control limits specified by the method, 40-140% for base/neutrals and 30-130% for acids except for “difficult analytes” listed below and/or otherwise listed in this narrative. Difficult analytes limits are 15 and 140%: 2,4-dinitrophenol, 4-chloroaniline, 4-nitrophenol, and phenol.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-1 Sampled: 9/8/2016 13:00

Sample ID: 16I0369-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
tert-Amyl Methyl Ether (TAME)	ND	0.00097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Benzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Bromobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Bromochloromethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Bromodichloromethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Bromoform	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Bromomethane	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
2-Butanone (MEK)	ND	0.039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
n-Butylbenzene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
sec-Butylbenzene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
tert-Butylbenzene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
tert-Butyl Ethyl Ether (TBEE)	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Carbon Disulfide	ND	0.019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Carbon Tetrachloride	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Chlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Chlorodibromomethane	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Chloroethane	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Chloroform	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Chloromethane	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
2-Chlorotoluene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
4-Chlorotoluene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2-Dibromoethane (EDB)	ND	0.00097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Dibromomethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,3-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,4-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Dichlorodifluoromethane (Freon 12)	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,1-Dichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2-Dichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,1-Dichloroethylene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
cis-1,2-Dichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
trans-1,2-Dichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2-Dichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,3-Dichloropropane	ND	0.00097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
2,2-Dichloropropane	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,1-Dichloropropene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
cis-1,3-Dichloropropene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
trans-1,3-Dichloropropene	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Diethyl Ether	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Diisopropyl Ether (DIPE)	ND	0.00097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,4-Dioxane	ND	0.097	mg/Kg dry	1	V-16	SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Ethylbenzene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-1 Sampled: 9/8/2016 13:00

Sample ID: 16I0369-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
2-Hexanone (MBK)	ND	0.019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Isopropylbenzene (Cumene)	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
p-Isopropyltoluene (p-Cymene)	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Methyl tert-Butyl Ether (MTBE)	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Methylene Chloride	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
4-Methyl-2-pentanone (MIBK)	ND	0.019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Naphthalene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
n-Propylbenzene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Styrene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,1,1,2-Tetrachloroethane	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,1,2,2-Tetrachloroethane	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Tetrachloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Tetrahydrofuran	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Toluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2,3-Trichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2,4-Trichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,1,1-Trichloroethane	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,1,2-Trichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Trichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Trichlorofluoromethane (Freon 11)	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2,3-Trichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,2,4-Trimethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
1,3,5-Trimethylbenzene	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
Vinyl Chloride	ND	0.0097	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
m+p Xylene	ND	0.0077	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ
o-Xylene	ND	0.0039	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 12:54	ZZZ

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	103	70-130		9/13/16 12:54
Toluene-d8	93.6	70-130		9/13/16 12:54
4-Bromofluorobenzene	83.6	70-130		9/13/16 12:54

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-1 Sampled: 9/8/2016 13:00

Sample ID: 16I0369-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	0.21	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Acenaphthylene	0.23	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Acetophenone	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Aniline	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Anthracene	0.77	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Benzo(a)anthracene	1.8	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Benzo(a)pyrene	1.7	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Benzo(b)fluoranthene	2.0	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Benzo(g,h,i)perylene	0.83	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Benzo(k)fluoranthene	0.79	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Bis(2-chloroethoxy)methane	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Bis(2-chloroethyl)ether	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Bis(2-chloroisopropyl)ether	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Bis(2-Ethylhexyl)phthalate	ND	0.36	mg/Kg dry	1	V-20	SW-846 8270D	9/12/16	9/13/16 12:37	WSD
4-Bromophenylphenylether	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Butylbenzylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
4-Chloroaniline	ND	0.69	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2-Chloronaphthalene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2-Chlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Chrysene	1.7	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Dibenz(a,h)anthracene	0.23	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Dibenzofuran	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Di-n-butylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
1,2-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
1,3-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
1,4-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
3,3-Dichlorobenzidine	ND	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2,4-Dichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Diethylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2,4-Dimethylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Dimethylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2,4-Dinitrophenol	ND	0.69	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2,4-Dinitrotoluene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2,6-Dinitrotoluene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Di-n-octylphthalate	ND	0.36	mg/Kg dry	1	V-20	SW-846 8270D	9/12/16	9/13/16 12:37	WSD
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Fluoranthene	3.6	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Fluorene	0.42	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Hexachlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Hexachlorobutadiene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Hexachloroethane	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Indeno(1,2,3-cd)pyrene	0.93	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Isophorone	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-1 Sampled: 9/8/2016 13:00

Sample ID: 16I0369-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
3/4-Methylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Nitrobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2-Nitrophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
4-Nitrophenol	ND	0.69	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Pentachlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Phenanthrene	3.1	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Phenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
Pyrene	3.5	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
1,2,4-Trichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2,4,5-Trichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD
2,4,6-Trichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 12:37	WSD

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	81.9	30-130		9/13/16 12:37
Phenol-d6	79.0	30-130		9/13/16 12:37
Nitrobenzene-d5	84.3	30-130		9/13/16 12:37
2-Fluorobiphenyl	86.8	30-130		9/13/16 12:37
2,4,6-Tribromophenol	82.2	30-130		9/13/16 12:37
p-Terphenyl-d14	102	30-130		9/13/16 12:37

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-1 Sampled: 9/8/2016 13:00

Sample ID: 16I0369-01

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL
Aroclor-1221 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL
Aroclor-1232 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL
Aroclor-1242 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL
Aroclor-1248 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL
Aroclor-1254 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL
Aroclor-1260 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL
Aroclor-1262 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL
Aroclor-1268 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 19:54	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	94.4	30-150		9/13/16 19:54
Decachlorobiphenyl [2]	107	30-150		9/13/16 19:54
Tetrachloro-m-xylene [1]	90.0	30-150		9/13/16 19:54
Tetrachloro-m-xylene [2]	85.3	30-150		9/13/16 19:54

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-1 Sampled: 9/8/2016 13:00

Sample ID: 16I0369-01

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	220	87	mg/Kg dry	10		SW-846 8100 Modified	9/12/16	9/12/16 14:17	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
o-Terphenyl	69.7	40-140				9/12/16 14:17	

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-1 Sampled: 9/8/2016 13:00

Sample ID: 16I0369-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	ND	2.6	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:07	QNW
Cadmium	0.41	0.26	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:07	QNW
Chromium	15	0.52	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:07	QNW
Lead	21	0.78	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:07	QNW
Mercury	ND	0.025	mg/Kg dry	1		SW-846 7471B	9/13/16	9/14/16 9:00	SHN

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-1 Sampled: 9/8/2016 13:00

Sample ID: 16I0369-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Specific conductance	5.8	2.0	µmhos/cm	1		SM21-22 2510B Modified	9/14/16	9/14/16 10:55	MMH
% Solids	95.7		% Wt	1		SM 2540G	9/12/16	9/13/16 7:37	MRL

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-2 Sampled: 9/8/2016 15:50

Sample ID: 16I0369-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.10	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Benzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Bromobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Bromochloromethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Bromodichloromethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Bromoform	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Bromomethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
2-Butanone (MEK)	ND	0.041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
n-Butylbenzene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
sec-Butylbenzene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
tert-Butylbenzene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
tert-Butyl Ethyl Ether (TBEE)	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Carbon Disulfide	ND	0.020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Carbon Tetrachloride	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Chlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Chlorodibromomethane	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Chloroethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Chloroform	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Chloromethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
2-Chlorotoluene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
4-Chlorotoluene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Dibromomethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,3-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,4-Dichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,1-Dichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2-Dichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,1-Dichloroethylene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2-Dichloropropane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,3-Dichloropropane	ND	0.0010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
2,2-Dichloropropane	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,1-Dichloropropene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
cis-1,3-Dichloropropene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
trans-1,3-Dichloropropene	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Diethyl Ether	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,4-Dioxane	ND	0.10	mg/Kg dry	1	V-16	SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Ethylbenzene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-2 Sampled: 9/8/2016 15:50

Sample ID: 16I0369-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
2-Hexanone (MBK)	ND	0.020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Isopropylbenzene (Cumene)	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
p-Isopropyltoluene (p-Cymene)	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Methyl tert-Butyl Ether (MTBE)	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Methylene Chloride	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Naphthalene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
n-Propylbenzene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Styrene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,1,1,2-Tetrachloroethane	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,1,2,2-Tetrachloroethane	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Tetrachloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Tetrahydrofuran	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Toluene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,1,1-Trichloroethane	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,1,2-Trichloroethane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Trichloroethylene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2,3-Trichloropropane	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
1,3,5-Trimethylbenzene	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
Vinyl Chloride	ND	0.010	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
m+p Xylene	ND	0.0082	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ
o-Xylene	ND	0.0041	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:20	ZZZ

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	104	70-130		9/13/16 13:20
Toluene-d8	95.6	70-130		9/13/16 13:20
4-Bromofluorobenzene	91.0	70-130		9/13/16 13:20

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-2 Sampled: 9/8/2016 15:50

Sample ID: 16I0369-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Acenaphthylene	1.0	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Acetophenone	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Aniline	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Anthracene	1.3	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Benzo(a)anthracene	2.4	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Benzo(a)pyrene	2.0	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Benzo(b)fluoranthene	2.4	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Benzo(g,h,i)perylene	1.1	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Benzo(k)fluoranthene	1.0	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Bis(2-chloroethoxy)methane	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Bis(2-chloroethyl)ether	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Bis(2-chloroisopropyl)ether	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Bis(2-Ethylhexyl)phthalate	ND	0.73	mg/Kg dry	2	V-20	SW-846 8270D	9/12/16	9/13/16 12:59	WSD
4-Bromophenylphenylether	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Butylbenzylphthalate	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
4-Chloroaniline	ND	1.4	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2-Chloronaphthalene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2-Chlorophenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Chrysene	2.3	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Dibenz(a,h)anthracene	ND	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Dibenzofuran	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Di-n-butylphthalate	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
1,2-Dichlorobenzene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
1,3-Dichlorobenzene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
1,4-Dichlorobenzene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
3,3-Dichlorobenzidine	ND	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2,4-Dichlorophenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Diethylphthalate	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2,4-Dimethylphenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Dimethylphthalate	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2,4-Dinitrophenol	ND	1.4	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2,4-Dinitrotoluene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2,6-Dinitrotoluene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Di-n-octylphthalate	ND	0.73	mg/Kg dry	2	V-20	SW-846 8270D	9/12/16	9/13/16 12:59	WSD
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Fluoranthene	4.8	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Fluorene	1.4	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Hexachlorobenzene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Hexachlorobutadiene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Hexachloroethane	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Indeno(1,2,3-cd)pyrene	1.1	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Isophorone	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2-Methylnaphthalene	0.82	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-2 Sampled: 9/8/2016 15:50

Sample ID: 16I0369-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
3/4-Methylphenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Naphthalene	0.51	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Nitrobenzene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2-Nitrophenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
4-Nitrophenol	ND	1.4	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Pentachlorophenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Phenanthrene	7.2	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Phenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
Pyrene	5.7	0.37	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
1,2,4-Trichlorobenzene	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2,4,5-Trichlorophenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD
2,4,6-Trichlorophenol	ND	0.73	mg/Kg dry	2		SW-846 8270D	9/12/16	9/13/16 12:59	WSD

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	80.4	30-130		9/13/16 12:59
Phenol-d6	80.1	30-130		9/13/16 12:59
Nitrobenzene-d5	81.7	30-130		9/13/16 12:59
2-Fluorobiphenyl	78.0	30-130		9/13/16 12:59
2,4,6-Tribromophenol	75.0	30-130		9/13/16 12:59
p-Terphenyl-d14	96.2	30-130		9/13/16 12:59

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-2 Sampled: 9/8/2016 15:50

Sample ID: 16I0369-02

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL
Aroclor-1221 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL
Aroclor-1232 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL
Aroclor-1242 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL
Aroclor-1248 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL
Aroclor-1254 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL
Aroclor-1260 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL
Aroclor-1262 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL
Aroclor-1268 [1]	ND	0.11	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:12	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	80.7	30-150		9/13/16 20:12
Decachlorobiphenyl [2]	96.0	30-150		9/13/16 20:12
Tetrachloro-m-xylene [1]	79.7	30-150		9/13/16 20:12
Tetrachloro-m-xylene [2]	75.3	30-150		9/13/16 20:12

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-2 Sampled: 9/8/2016 15:50

Sample ID: 16I0369-02

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	460	180	mg/Kg dry	20		SW-846 8100 Modified	9/12/16	9/12/16 14:34	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
o-Terphenyl	*	40-140	S-01				9/12/16 14:34

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-2 Sampled: 9/8/2016 15:50

Sample ID: 16I0369-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	ND	2.6	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:13	QNW
Cadmium	0.41	0.26	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:13	QNW
Chromium	13	0.53	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:13	QNW
Lead	27	0.79	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:13	QNW
Mercury	0.046	0.026	mg/Kg dry	1		SW-846 7471B	9/13/16	9/14/16 9:02	SHN

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-2 Sampled: 9/8/2016 15:50

Sample ID: 16I0369-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Specific conductance	8.1	2.0	µmhos/cm	1		SM21-22 2510B Modified	9/14/16	9/14/16 10:55	MMH
% Solids	92.6		% Wt	1		SM 2540G	9/12/16	9/13/16 7:37	MRL

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-3 Sampled: 9/9/2016 14:25

Sample ID: 16I0369-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.15	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
tert-Amyl Methyl Ether (TAME)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Benzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Bromobenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Bromochloromethane	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Bromodichloromethane	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Bromoform	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Bromomethane	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
2-Butanone (MEK)	ND	0.061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
n-Butylbenzene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
sec-Butylbenzene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
tert-Butylbenzene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
tert-Butyl Ethyl Ether (TBEE)	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Carbon Disulfide	ND	0.030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Carbon Tetrachloride	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Chlorobenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Chlorodibromomethane	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Chloroethane	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Chloroform	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Chloromethane	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
2-Chlorotoluene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
4-Chlorotoluene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2-Dibromoethane (EDB)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Dibromomethane	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2-Dichlorobenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,3-Dichlorobenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,4-Dichlorobenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Dichlorodifluoromethane (Freon 12)	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,1-Dichloroethane	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2-Dichloroethane	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,1-Dichloroethylene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
cis-1,2-Dichloroethylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
trans-1,2-Dichloroethylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2-Dichloropropane	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,3-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
2,2-Dichloropropane	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,1-Dichloropropene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
cis-1,3-Dichloropropene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
trans-1,3-Dichloropropene	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Diethyl Ether	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Diisopropyl Ether (DIPE)	ND	0.0015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,4-Dioxane	ND	0.15	mg/Kg dry	1	V-16	SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Ethylbenzene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-3 Sampled: 9/9/2016 14:25

Sample ID: 16I0369-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
2-Hexanone (MBK)	ND	0.030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Isopropylbenzene (Cumene)	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
p-Isopropyltoluene (p-Cymene)	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Methyl tert-Butyl Ether (MTBE)	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Methylene Chloride	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
4-Methyl-2-pentanone (MIBK)	ND	0.030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Naphthalene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
n-Propylbenzene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Styrene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,1,1,2-Tetrachloroethane	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,1,2,2-Tetrachloroethane	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Tetrachloroethylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Tetrahydrofuran	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Toluene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2,3-Trichlorobenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2,4-Trichlorobenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,1,1-Trichloroethane	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,1,2-Trichloroethane	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Trichloroethylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Trichlorofluoromethane (Freon 11)	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2,3-Trichloropropane	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,2,4-Trimethylbenzene	ND	0.0030	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
1,3,5-Trimethylbenzene	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
Vinyl Chloride	ND	0.015	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
m+p Xylene	ND	0.012	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ
o-Xylene	ND	0.0061	mg/Kg dry	1		SW-846 8260C	9/13/16	9/13/16 13:47	ZZZ

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	104	70-130		9/13/16 13:47
Toluene-d8	94.4	70-130		9/13/16 13:47
4-Bromofluorobenzene	86.7	70-130		9/13/16 13:47

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-3 Sampled: 9/9/2016 14:25

Sample ID: 16I0369-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Acenaphthylene	0.30	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Acetophenone	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Aniline	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Anthracene	0.38	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Benzo(a)anthracene	0.98	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Benzo(a)pyrene	0.97	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Benzo(b)fluoranthene	1.1	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Benzo(g,h,i)perylene	0.73	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Benzo(k)fluoranthene	0.43	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Bis(2-chloroethoxy)methane	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Bis(2-chloroethyl)ether	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Bis(2-chloroisopropyl)ether	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Bis(2-Ethylhexyl)phthalate	ND	0.36	mg/Kg dry	1	V-20	SW-846 8270D	9/12/16	9/13/16 18:33	WSD
4-Bromophenylphenylether	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Butylbenzylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
4-Chloroaniline	ND	0.69	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2-Chloronaphthalene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2-Chlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Chrysene	0.94	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Dibenz(a,h)anthracene	0.18	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Dibenzofuran	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Di-n-butylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
1,2-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
1,3-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
1,4-Dichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
3,3-Dichlorobenzidine	ND	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2,4-Dichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Diethylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2,4-Dimethylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Dimethylphthalate	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2,4-Dinitrophenol	ND	0.69	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2,4-Dinitrotoluene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2,6-Dinitrotoluene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Di-n-octylphthalate	ND	0.36	mg/Kg dry	1	V-20	SW-846 8270D	9/12/16	9/13/16 18:33	WSD
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Fluoranthene	1.8	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Hexachlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Hexachlorobutadiene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Hexachloroethane	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Indeno(1,2,3-cd)pyrene	0.70	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Isophorone	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-3 Sampled: 9/9/2016 14:25

Sample ID: 16I0369-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
3/4-Methylphenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Nitrobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2-Nitrophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
4-Nitrophenol	ND	0.69	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Pentachlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Phenanthrene	1.4	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Phenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
Pyrene	2.2	0.18	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
1,2,4-Trichlorobenzene	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2,4,5-Trichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD
2,4,6-Trichlorophenol	ND	0.36	mg/Kg dry	1		SW-846 8270D	9/12/16	9/13/16 18:33	WSD

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol	83.8	30-130		9/13/16 18:33
Phenol-d6	82.1	30-130		9/13/16 18:33
Nitrobenzene-d5	82.8	30-130		9/13/16 18:33
2-Fluorobiphenyl	79.2	30-130		9/13/16 18:33
2,4,6-Tribromophenol	81.2	30-130		9/13/16 18:33
p-Terphenyl-d14	118	30-130		9/13/16 18:33

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-3 Sampled: 9/9/2016 14:25

Sample ID: 16I0369-03

Sample Matrix: Soil

Sample Flags: O-32

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL
Aroclor-1221 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL
Aroclor-1232 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL
Aroclor-1242 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL
Aroclor-1248 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL
Aroclor-1254 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL
Aroclor-1260 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL
Aroclor-1262 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL
Aroclor-1268 [1]	ND	0.10	mg/Kg dry	5		SW-846 8082A	9/12/16	9/13/16 20:29	KAL

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	81.5	30-150		9/13/16 20:29
Decachlorobiphenyl [2]	94.8	30-150		9/13/16 20:29
Tetrachloro-m-xylene [1]	89.2	30-150		9/13/16 20:29
Tetrachloro-m-xylene [2]	90.8	30-150		9/13/16 20:29

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-3 Sampled: 9/9/2016 14:25

Sample ID: 16I0369-03

Sample Matrix: Soil

Petroleum Hydrocarbons Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
TPH (C9-C36)	570	170	mg/Kg dry	20		SW-846 8100 Modified	9/12/16	9/12/16 15:28	SCS

Surrogates	% Recovery	Recovery Limits	Flag/Qual				
o-Terphenyl	*	40-140	S-01				9/12/16 15:28

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-3 Sampled: 9/9/2016 14:25

Sample ID: 16I0369-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	3.6	2.6	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:18	QNW
Cadmium	0.47	0.26	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:18	QNW
Chromium	13	0.51	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:18	QNW
Lead	30	0.77	mg/Kg dry	1		SW-846 6010C-D	9/12/16	9/13/16 23:18	QNW
Mercury	0.029	0.026	mg/Kg dry	1		SW-846 7471B	9/13/16	9/14/16 9:03	SHN

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Project Location: Wayland Public Library (TAPPE) Sample Description: Work Order: 16I0369

Date Received: 9/9/2016

Field Sample #: C-3 Sampled: 9/9/2016 14:25

Sample ID: 16I0369-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Specific conductance	3.3	2.0	µmhos/cm	1		SM21-22 2510B Modified	9/14/16	9/14/16 10:55	MMH
% Solids	95.4		% Wt	1		SM 2540G	9/12/16	9/13/16 7:37	MRL

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Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
16I0369-01 [C-1]	B158089	09/12/16
16I0369-02 [C-2]	B158089	09/12/16
16I0369-03 [C-3]	B158089	09/12/16

SM21-22 2510B Modified

Lab Number [Field ID]	Batch	Initial [g]	Date
16I0369-01 [C-1]	B158294	1.00	09/14/16
16I0369-02 [C-2]	B158294	1.00	09/14/16
16I0369-03 [C-3]	B158294	1.00	09/14/16

Prep Method: SW-846 3050B-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
16I0369-01 [C-1]	B158122	1.01	50.0	09/12/16
16I0369-02 [C-2]	B158122	1.03	50.0	09/12/16
16I0369-03 [C-3]	B158122	1.02	50.0	09/12/16

Prep Method: SW-846 7471-SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
16I0369-01 [C-1]	B158193	0.615	50.0	09/13/16
16I0369-02 [C-2]	B158193	0.619	50.0	09/13/16
16I0369-03 [C-3]	B158193	0.598	50.0	09/13/16

Prep Method: SW-846 3546-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
16I0369-01 [C-1]	B158062	10.0	10.0	09/12/16
16I0369-02 [C-2]	B158062	10.0	10.0	09/12/16
16I0369-03 [C-3]	B158062	10.0	10.0	09/12/16

Prep Method: SW-846 3546-SW-846 8100 Modified

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
16I0369-01 [C-1]	B158063	30.0	1.00	09/12/16
16I0369-02 [C-2]	B158063	30.0	1.00	09/12/16
16I0369-03 [C-3]	B158063	30.0	1.00	09/12/16

Prep Method: SW-846 5035-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
16I0369-01 [C-1]	B158230	5.41	10.0	09/13/16
16I0369-02 [C-2]	B158230	5.30	10.0	09/13/16
16I0369-03 [C-3]	B158230	3.46	10.0	09/13/16

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Sample Extraction Data

Prep Method: SW-846 3546-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
16I0369-01 [C-1]	B158064	30.0	1.00	09/12/16
16I0369-02 [C-2]	B158064	30.0	1.00	09/12/16
16I0369-03 [C-3]	B158064	30.0	1.00	09/12/16

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B158230 - SW-846 5035										
Blank (B158230-BLK1)				Prepared & Analyzed: 09/13/16						
Acetone	ND	0.10	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.010	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
Dichlorodifluoromethane (Freon 12)	ND	0.010	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.010	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							V-16
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methylene Chloride	ND	0.010	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result		%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B158230 - SW-846 5035												
Blank (B158230-BLK1)				Prepared & Analyzed: 09/13/16								
n-Propylbenzene	ND	0.0020	mg/Kg wet									
Styrene	ND	0.0020	mg/Kg wet									
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet									
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet									
Tetrachloroethylene	ND	0.0020	mg/Kg wet									
Tetrahydrofuran	ND	0.010	mg/Kg wet									
Toluene	ND	0.0020	mg/Kg wet									
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet									
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet									
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet									
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet									
Trichloroethylene	ND	0.0020	mg/Kg wet									
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet									
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet									
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet									
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet									
Vinyl Chloride	ND	0.010	mg/Kg wet									
m+p Xylene	ND	0.0040	mg/Kg wet									
o-Xylene	ND	0.0020	mg/Kg wet									
Surrogate: 1,2-Dichloroethane-d4	*0.0478*		mg/Kg wet	0.0500			95.6	70-130				
Surrogate: Toluene-d8	*0.0473*		mg/Kg wet	0.0500			94.5	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0437*		mg/Kg wet	0.0500			87.4	70-130				
LCS (B158230-BS1)				Prepared & Analyzed: 09/13/16								
Acetone	0.328	0.10	mg/Kg wet	0.200			**164**	* 40-160			L-07	†
tert-Amyl Methyl Ether (TAME)	0.0201	0.0010	mg/Kg wet	0.0200			100	70-130				
Benzene	0.0208	0.0020	mg/Kg wet	0.0200			104	70-130				
Bromobenzene	0.0211	0.0020	mg/Kg wet	0.0200			106	70-130				
Bromochloromethane	0.0206	0.0020	mg/Kg wet	0.0200			103	70-130				
Bromodichloromethane	0.0217	0.0020	mg/Kg wet	0.0200			109	70-130				
Bromoform	0.0218	0.0020	mg/Kg wet	0.0200			109	70-130				
Bromomethane	0.0109	0.010	mg/Kg wet	0.0200			54.3	40-160			L-14	†
2-Butanone (MEK)	0.238	0.040	mg/Kg wet	0.200			119	40-160				†
n-Butylbenzene	0.0197	0.0020	mg/Kg wet	0.0200			98.7	70-130				
sec-Butylbenzene	0.0207	0.0020	mg/Kg wet	0.0200			104	70-130				
tert-Butylbenzene	0.0201	0.0020	mg/Kg wet	0.0200			100	70-130				
tert-Butyl Ethyl Ether (TBEE)	0.0181	0.0010	mg/Kg wet	0.0200			90.4	70-130				
Carbon Disulfide	0.0221	0.0060	mg/Kg wet	0.0200			110	70-130				
Carbon Tetrachloride	0.0199	0.0020	mg/Kg wet	0.0200			99.7	70-130				
Chlorobenzene	0.0229	0.0020	mg/Kg wet	0.0200			115	70-130				
Chlorodibromomethane	0.0204	0.0010	mg/Kg wet	0.0200			102	70-130				
Chloroethane	0.0192	0.010	mg/Kg wet	0.0200			96.0	70-130				
Chloroform	0.0188	0.0040	mg/Kg wet	0.0200			93.9	70-130				
Chloromethane	0.0138	0.010	mg/Kg wet	0.0200			69.2	40-160			L-14	†
2-Chlorotoluene	0.0205	0.0020	mg/Kg wet	0.0200			103	70-130				
4-Chlorotoluene	0.0200	0.0020	mg/Kg wet	0.0200			100	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	0.0188	0.0020	mg/Kg wet	0.0200			93.9	70-130				
1,2-Dibromoethane (EDB)	0.0201	0.0010	mg/Kg wet	0.0200			101	70-130				
Dibromomethane	0.0218	0.0020	mg/Kg wet	0.0200			109	70-130				
1,2-Dichlorobenzene	0.0229	0.0020	mg/Kg wet	0.0200			114	70-130				
1,3-Dichlorobenzene	0.0218	0.0020	mg/Kg wet	0.0200			109	70-130				
1,4-Dichlorobenzene	0.0227	0.0020	mg/Kg wet	0.0200			113	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B158230 - SW-846 5035											
LCS (B158230-BS1)				Prepared & Analyzed: 09/13/16							
Dichlorodifluoromethane (Freon 12)	0.0212	0.010	mg/Kg wet	0.0200		106	40-160				†
1,1-Dichloroethane	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130				
1,2-Dichloroethane	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130				
1,1-Dichloroethylene	0.0219	0.0040	mg/Kg wet	0.0200		110	70-130				
cis-1,2-Dichloroethylene	0.0193	0.0020	mg/Kg wet	0.0200		96.3	70-130				
trans-1,2-Dichloroethylene	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130				
1,2-Dichloropropane	0.0200	0.0020	mg/Kg wet	0.0200		100	70-130				
1,3-Dichloropropane	0.0198	0.0010	mg/Kg wet	0.0200		98.8	70-130				
2,2-Dichloropropane	0.0176	0.0020	mg/Kg wet	0.0200		88.0	70-130				
1,1-Dichloropropene	0.0200	0.0020	mg/Kg wet	0.0200		99.8	70-130				
cis-1,3-Dichloropropene	0.0172	0.0010	mg/Kg wet	0.0200		85.8	70-130				
trans-1,3-Dichloropropene	0.0188	0.0010	mg/Kg wet	0.0200		93.9	70-130				
Diethyl Ether	0.0193	0.010	mg/Kg wet	0.0200		96.3	70-130				
Diisopropyl Ether (DIPE)	0.0188	0.0010	mg/Kg wet	0.0200		94.2	70-130				
1,4-Dioxane	0.206	0.10	mg/Kg wet	0.200		103	40-160			V-16	†
Ethylbenzene	0.0201	0.0020	mg/Kg wet	0.0200		101	70-130				
Hexachlorobutadiene	0.0245	0.0020	mg/Kg wet	0.0200		122	70-130				
2-Hexanone (MBK)	0.199	0.020	mg/Kg wet	0.200		99.5	40-160				†
Isopropylbenzene (Cumene)	0.0228	0.0020	mg/Kg wet	0.0200		114	70-130				
p-Isopropyltoluene (p-Cymene)	0.0196	0.0020	mg/Kg wet	0.0200		97.8	70-130				
Methyl tert-Butyl Ether (MTBE)	0.0198	0.0040	mg/Kg wet	0.0200		99.0	70-130				
Methylene Chloride	0.0180	0.010	mg/Kg wet	0.0200		90.2	70-130				
4-Methyl-2-pentanone (MIBK)	0.193	0.020	mg/Kg wet	0.200		96.3	40-160				†
Naphthalene	0.0211	0.0040	mg/Kg wet	0.0200		105	70-130				
n-Propylbenzene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130				
Styrene	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130				
1,1,1,2-Tetrachloroethane	0.0223	0.0020	mg/Kg wet	0.0200		112	70-130				
1,1,2,2-Tetrachloroethane	0.0212	0.0010	mg/Kg wet	0.0200		106	70-130				
Tetrachloroethylene	0.0223	0.0020	mg/Kg wet	0.0200		111	70-130				
Tetrahydrofuran	0.0185	0.010	mg/Kg wet	0.0200		92.5	70-130				
Toluene	0.0193	0.0020	mg/Kg wet	0.0200		96.7	70-130				
1,2,3-Trichlorobenzene	0.0234	0.0020	mg/Kg wet	0.0200		117	70-130				
1,2,4-Trichlorobenzene	0.0224	0.0020	mg/Kg wet	0.0200		112	70-130				
1,1,1-Trichloroethane	0.0180	0.0020	mg/Kg wet	0.0200		90.0	70-130				
1,1,2-Trichloroethane	0.0215	0.0020	mg/Kg wet	0.0200		108	70-130				
Trichloroethylene	0.0209	0.0020	mg/Kg wet	0.0200		104	70-130				
Trichlorofluoromethane (Freon 11)	0.0198	0.010	mg/Kg wet	0.0200		98.9	70-130				
1,2,3-Trichloropropane	0.0224	0.0020	mg/Kg wet	0.0200		112	70-130				
1,2,4-Trimethylbenzene	0.0213	0.0020	mg/Kg wet	0.0200		107	70-130				
1,3,5-Trimethylbenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130				
Vinyl Chloride	0.0194	0.010	mg/Kg wet	0.0200		96.8	70-130				
m+p Xylene	0.0405	0.0040	mg/Kg wet	0.0400		101	70-130				
o-Xylene	0.0198	0.0020	mg/Kg wet	0.0200		98.8	70-130				
Surrogate: 1,2-Dichloroethane-d4	*0.0458*		mg/Kg wet	0.0500		91.6	70-130				
Surrogate: Toluene-d8	*0.0495*		mg/Kg wet	0.0500		99.0	70-130				
Surrogate: 4-Bromofluorobenzene	*0.0483*		mg/Kg wet	0.0500		96.6	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B158230 - SW-846 5035											
LCS Dup (B158230-BSD1)				Prepared & Analyzed: 09/13/16							
Acetone	0.308	0.10	mg/Kg wet	0.200		154	40-160	6.19	20		†
tert-Amyl Methyl Ether (TAME)	0.0190	0.0010	mg/Kg wet	0.0200		95.0	70-130	5.53	20		
Benzene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	2.53	20		
Bromobenzene	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130	0.190	20		
Bromochloromethane	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	1.47	20		
Bromodichloromethane	0.0211	0.0020	mg/Kg wet	0.0200		105	70-130	3.09	20		
Bromoform	0.0213	0.0020	mg/Kg wet	0.0200		106	70-130	2.14	20		
Bromomethane	0.0125	0.010	mg/Kg wet	0.0200		62.6	40-160	14.2	20	L-14	†
2-Butanone (MEK)	0.231	0.040	mg/Kg wet	0.200		116	40-160	2.58	20		†
n-Butylbenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.7	70-130	1.02	20		
sec-Butylbenzene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130	0.971	20		
tert-Butylbenzene	0.0197	0.0020	mg/Kg wet	0.0200		98.4	70-130	2.11	20		
tert-Butyl Ethyl Ether (TBEE)	0.0170	0.0010	mg/Kg wet	0.0200		85.0	70-130	6.16	20		
Carbon Disulfide	0.0218	0.0060	mg/Kg wet	0.0200		109	70-130	1.28	20		
Carbon Tetrachloride	0.0191	0.0020	mg/Kg wet	0.0200		95.5	70-130	4.30	20		
Chlorobenzene	0.0231	0.0020	mg/Kg wet	0.0200		115	70-130	0.522	20		
Chlorodibromomethane	0.0206	0.0010	mg/Kg wet	0.0200		103	70-130	0.781	20		
Chloroethane	0.0195	0.010	mg/Kg wet	0.0200		97.6	70-130	1.65	20		
Chloroform	0.0184	0.0040	mg/Kg wet	0.0200		92.0	70-130	2.04	20		
Chloromethane	0.0146	0.010	mg/Kg wet	0.0200		72.8	40-160	5.07	20		†
2-Chlorotoluene	0.0203	0.0020	mg/Kg wet	0.0200		102	70-130	1.08	20		
4-Chlorotoluene	0.0205	0.0020	mg/Kg wet	0.0200		102	70-130	2.37	20		
1,2-Dibromo-3-chloropropane (DBCP)	0.0179	0.0020	mg/Kg wet	0.0200		89.7	70-130	4.58	20		
1,2-Dibromoethane (EDB)	0.0204	0.0010	mg/Kg wet	0.0200		102	70-130	1.38	20		
Dibromomethane	0.0221	0.0020	mg/Kg wet	0.0200		110	70-130	1.09	20		
1,2-Dichlorobenzene	0.0232	0.0020	mg/Kg wet	0.0200		116	70-130	1.65	20		
1,3-Dichlorobenzene	0.0221	0.0020	mg/Kg wet	0.0200		110	70-130	1.18	20		
1,4-Dichlorobenzene	0.0227	0.0020	mg/Kg wet	0.0200		114	70-130	0.264	20		
Dichlorodifluoromethane (Freon 12)	0.0212	0.010	mg/Kg wet	0.0200		106	40-160	0.283	20		†
1,1-Dichloroethane	0.0195	0.0020	mg/Kg wet	0.0200		97.3	70-130	4.23	20		
1,2-Dichloroethane	0.0190	0.0020	mg/Kg wet	0.0200		95.0	70-130	3.62	20		
1,1-Dichloroethylene	0.0216	0.0040	mg/Kg wet	0.0200		108	70-130	1.47	20		
cis-1,2-Dichloroethylene	0.0191	0.0020	mg/Kg wet	0.0200		95.6	70-130	0.730	20		
trans-1,2-Dichloroethylene	0.0193	0.0020	mg/Kg wet	0.0200		96.6	70-130	2.86	20		
1,2-Dichloropropane	0.0201	0.0020	mg/Kg wet	0.0200		100	70-130	0.399	20		
1,3-Dichloropropane	0.0197	0.0010	mg/Kg wet	0.0200		98.5	70-130	0.304	20		
2,2-Dichloropropane	0.0164	0.0020	mg/Kg wet	0.0200		82.2	70-130	6.82	20		
1,1-Dichloropropene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	1.10	20		
cis-1,3-Dichloropropene	0.0168	0.0010	mg/Kg wet	0.0200		83.8	70-130	2.36	20		
trans-1,3-Dichloropropene	0.0179	0.0010	mg/Kg wet	0.0200		89.6	70-130	4.69	20		
Diethyl Ether	0.0187	0.010	mg/Kg wet	0.0200		93.5	70-130	2.95	20		
Diisopropyl Ether (DIPE)	0.0177	0.0010	mg/Kg wet	0.0200		88.3	70-130	6.47	20		
1,4-Dioxane	0.178	0.10	mg/Kg wet	0.200		88.8	40-160	14.7	20	V-16	†
Ethylbenzene	0.0202	0.0020	mg/Kg wet	0.0200		101	70-130	0.396	20		
Hexachlorobutadiene	0.0239	0.0020	mg/Kg wet	0.0200		120	70-130	2.23	20		
2-Hexanone (MBK)	0.194	0.020	mg/Kg wet	0.200		97.2	40-160	2.37	20		†
Isopropylbenzene (Cumene)	0.0231	0.0020	mg/Kg wet	0.0200		115	70-130	1.31	20		
p-Isopropyltoluene (p-Cymene)	0.0192	0.0020	mg/Kg wet	0.0200		95.8	70-130	2.07	20		
Methyl tert-Butyl Ether (MTBE)	0.0190	0.0040	mg/Kg wet	0.0200		94.8	70-130	4.33	20		
Methylene Chloride	0.0172	0.010	mg/Kg wet	0.0200		85.8	70-130	5.00	20		
4-Methyl-2-pentanone (MIBK)	0.193	0.020	mg/Kg wet	0.200		96.4	40-160	0.125	20		†
Naphthalene	0.0211	0.0040	mg/Kg wet	0.0200		106	70-130	0.190	20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B158230 - SW-846 5035										
LCS Dup (B158230-BSD1)				Prepared & Analyzed: 09/13/16						
n-Propylbenzene	0.0207	0.0020	mg/Kg wet	0.0200		104	70-130	1.07	20	
Styrene	0.0197	0.0020	mg/Kg wet	0.0200		98.3	70-130	0.203	20	
1,1,1,2-Tetrachloroethane	0.0221	0.0020	mg/Kg wet	0.0200		111	70-130	0.720	20	
1,1,2,2-Tetrachloroethane	0.0217	0.0010	mg/Kg wet	0.0200		108	70-130	2.05	20	
Tetrachloroethylene	0.0226	0.0020	mg/Kg wet	0.0200		113	70-130	1.51	20	
Tetrahydrofuran	0.0189	0.010	mg/Kg wet	0.0200		94.3	70-130	1.93	20	
Toluene	0.0193	0.0020	mg/Kg wet	0.0200		96.3	70-130	0.415	20	
1,2,3-Trichlorobenzene	0.0235	0.0020	mg/Kg wet	0.0200		118	70-130	0.426	20	
1,2,4-Trichlorobenzene	0.0222	0.0020	mg/Kg wet	0.0200		111	70-130	0.987	20	
1,1,1-Trichloroethane	0.0185	0.0020	mg/Kg wet	0.0200		92.5	70-130	2.74	20	
1,1,2-Trichloroethane	0.0204	0.0020	mg/Kg wet	0.0200		102	70-130	5.05	20	
Trichloroethylene	0.0210	0.0020	mg/Kg wet	0.0200		105	70-130	0.382	20	
Trichlorofluoromethane (Freon 11)	0.0196	0.010	mg/Kg wet	0.0200		98.1	70-130	0.812	20	
1,2,3-Trichloropropane	0.0231	0.0020	mg/Kg wet	0.0200		116	70-130	3.08	20	
1,2,4-Trimethylbenzene	0.0200	0.0020	mg/Kg wet	0.0200		99.9	70-130	6.58	20	
1,3,5-Trimethylbenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.2	70-130	0.210	20	
Vinyl Chloride	0.0194	0.010	mg/Kg wet	0.0200		96.9	70-130	0.103	20	
m+p Xylene	0.0408	0.0040	mg/Kg wet	0.0400		102	70-130	0.590	20	
o-Xylene	0.0196	0.0020	mg/Kg wet	0.0200		97.9	70-130	0.915	20	
Surrogate: 1,2-Dichloroethane-d4	*0.0448*		mg/Kg wet	0.0500		89.6	70-130			
Surrogate: Toluene-d8	*0.0497*		mg/Kg wet	0.0500		99.4	70-130			
Surrogate: 4-Bromofluorobenzene	*0.0477*		mg/Kg wet	0.0500		95.4	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B158064 - SW-846 3546										
Blank (B158064-BLK1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Acetophenone	ND	0.34	mg/Kg wet							
Aniline	ND	0.34	mg/Kg wet							
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Bis(2-chloroethoxy)methane	ND	0.34	mg/Kg wet							
Bis(2-chloroethyl)ether	ND	0.34	mg/Kg wet							
Bis(2-chloroisopropyl)ether	ND	0.34	mg/Kg wet							
Bis(2-Ethylhexyl)phthalate	ND	0.34	mg/Kg wet							V-20
4-Bromophenylphenylether	ND	0.34	mg/Kg wet							
Butylbenzylphthalate	ND	0.34	mg/Kg wet							
4-Chloroaniline	ND	0.66	mg/Kg wet							
2-Chloronaphthalene	ND	0.34	mg/Kg wet							
2-Chlorophenol	ND	0.34	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Dibenzofuran	ND	0.34	mg/Kg wet							
Di-n-butylphthalate	ND	0.34	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.34	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.34	mg/Kg wet							
3,3-Dichlorobenzidine	ND	0.17	mg/Kg wet							
2,4-Dichlorophenol	ND	0.34	mg/Kg wet							
Diethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dimethylphenol	ND	0.34	mg/Kg wet							
Dimethylphthalate	ND	0.34	mg/Kg wet							
2,4-Dinitrophenol	ND	0.66	mg/Kg wet							
2,4-Dinitrotoluene	ND	0.34	mg/Kg wet							
2,6-Dinitrotoluene	ND	0.34	mg/Kg wet							
Di-n-octylphthalate	ND	0.34	mg/Kg wet							V-20
1,2-Diphenylhydrazine (as Azobenzene)	ND	0.34	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Hexachlorobenzene	ND	0.34	mg/Kg wet							
Hexachlorobutadiene	ND	0.34	mg/Kg wet							
Hexachloroethane	ND	0.34	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
Isophorone	ND	0.34	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
2-Methylphenol	ND	0.34	mg/Kg wet							
3/4-Methylphenol	ND	0.34	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Nitrobenzene	ND	0.34	mg/Kg wet							
2-Nitrophenol	ND	0.34	mg/Kg wet							
4-Nitrophenol	ND	0.66	mg/Kg wet							
Pentachlorophenol	ND	0.34	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B158064 - SW-846 3546											
Blank (B158064-BLK1)				Prepared: 09/12/16 Analyzed: 09/13/16							
Phenol	ND	0.34	mg/Kg wet								
Pyrene	ND	0.17	mg/Kg wet								
1,2,4-Trichlorobenzene	ND	0.34	mg/Kg wet								
2,4,5-Trichlorophenol	ND	0.34	mg/Kg wet								
2,4,6-Trichlorophenol	ND	0.34	mg/Kg wet								
Surrogate: 2-Fluorophenol	*6.62*		mg/Kg wet	6.67		99.2	30-130				
Surrogate: Phenol-d6	*6.67*		mg/Kg wet	6.67		100	30-130				
Surrogate: Nitrobenzene-d5	*3.18*		mg/Kg wet	3.33		95.4	30-130				
Surrogate: 2-Fluorobiphenyl	*3.24*		mg/Kg wet	3.33		97.4	30-130				
Surrogate: 2,4,6-Tribromophenol	*6.03*		mg/Kg wet	6.67		90.5	30-130				
Surrogate: p-Terphenyl-d14	*4.32*		mg/Kg wet	3.33		129	30-130				
LCS (B158064-BS1)				Prepared: 09/12/16 Analyzed: 09/13/16							
Acenaphthene	1.75	0.17	mg/Kg wet	1.67		105	40-140				
Acenaphthylene	1.67	0.17	mg/Kg wet	1.67		100	40-140				
Acetophenone	1.48	0.34	mg/Kg wet	1.67		88.8	40-140				
Aniline	0.965	0.34	mg/Kg wet	1.67		57.9	40-140				
Anthracene	1.68	0.17	mg/Kg wet	1.67		101	40-140				
Benzo(a)anthracene	1.75	0.17	mg/Kg wet	1.67		105	40-140				
Benzo(a)pyrene	1.81	0.17	mg/Kg wet	1.67		109	40-140				
Benzo(b)fluoranthene	1.71	0.17	mg/Kg wet	1.67		102	40-140				
Benzo(g,h,i)perylene	1.79	0.17	mg/Kg wet	1.67		108	40-140				
Benzo(k)fluoranthene	1.69	0.17	mg/Kg wet	1.67		101	40-140				
Bis(2-chloroethoxy)methane	1.74	0.34	mg/Kg wet	1.67		105	40-140				
Bis(2-chloroethyl)ether	1.64	0.34	mg/Kg wet	1.67		98.6	40-140				
Bis(2-chloroisopropyl)ether	1.52	0.34	mg/Kg wet	1.67		91.2	40-140				
Bis(2-Ethylhexyl)phthalate	2.04	0.34	mg/Kg wet	1.67		122	40-140			V-20	
4-Bromophenylphenylether	1.74	0.34	mg/Kg wet	1.67		104	40-140				
Butylbenzylphthalate	1.90	0.34	mg/Kg wet	1.67		114	40-140				
4-Chloroaniline	0.979	0.66	mg/Kg wet	1.67		58.7	15-140				†
2-Chloronaphthalene	1.58	0.34	mg/Kg wet	1.67		95.1	40-140				
2-Chlorophenol	1.56	0.34	mg/Kg wet	1.67		93.9	30-130				
Chrysene	1.63	0.17	mg/Kg wet	1.67		97.7	40-140				
Dibenz(a,h)anthracene	1.74	0.17	mg/Kg wet	1.67		104	40-140				
Dibenzofuran	1.77	0.34	mg/Kg wet	1.67		106	40-140				
Di-n-butylphthalate	1.71	0.34	mg/Kg wet	1.67		102	40-140				
1,2-Dichlorobenzene	1.46	0.34	mg/Kg wet	1.67		87.7	40-140				
1,3-Dichlorobenzene	1.41	0.34	mg/Kg wet	1.67		84.7	40-140				
1,4-Dichlorobenzene	1.44	0.34	mg/Kg wet	1.67		86.3	40-140				
3,3-Dichlorobenzidine	1.12	0.17	mg/Kg wet	1.67		67.5	40-140				
2,4-Dichlorophenol	1.63	0.34	mg/Kg wet	1.67		98.0	30-130				
Diethylphthalate	1.71	0.34	mg/Kg wet	1.67		103	40-140				
2,4-Dimethylphenol	1.74	0.34	mg/Kg wet	1.67		105	30-130				
Dimethylphthalate	1.77	0.34	mg/Kg wet	1.67		106	40-140				
2,4-Dinitrophenol	0.833	0.66	mg/Kg wet	1.67		50.0	15-140				†
2,4-Dinitrotoluene	1.74	0.34	mg/Kg wet	1.67		104	40-140				
2,6-Dinitrotoluene	1.71	0.34	mg/Kg wet	1.67		103	40-140				
Di-n-octylphthalate	1.88	0.34	mg/Kg wet	1.67		113	40-140			V-20	
1,2-Diphenylhydrazine (as Azobenzene)	1.77	0.34	mg/Kg wet	1.67		106	40-140				
Fluoranthene	1.59	0.17	mg/Kg wet	1.67		95.2	40-140				
Fluorene	1.67	0.17	mg/Kg wet	1.67		99.9	40-140				
Hexachlorobenzene	1.67	0.34	mg/Kg wet	1.67		100	40-140				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B158064 - SW-846 3546										
LCS (B158064-BS1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Hexachlorobutadiene	1.64	0.34	mg/Kg wet	1.67		98.2	40-140			
Hexachloroethane	1.48	0.34	mg/Kg wet	1.67		88.6	40-140			
Indeno(1,2,3-cd)pyrene	1.79	0.17	mg/Kg wet	1.67		108	40-140			
Isophorone	1.72	0.34	mg/Kg wet	1.67		103	40-140			
2-Methylnaphthalene	1.76	0.17	mg/Kg wet	1.67		105	40-140			
2-Methylphenol	1.46	0.34	mg/Kg wet	1.67		87.7	30-130			
3/4-Methylphenol	1.59	0.34	mg/Kg wet	1.67		95.5	30-130			
Naphthalene	1.60	0.17	mg/Kg wet	1.67		95.8	40-140			
Nitrobenzene	1.65	0.34	mg/Kg wet	1.67		98.8	40-140			
2-Nitrophenol	1.63	0.34	mg/Kg wet	1.67		98.0	30-130			
4-Nitrophenol	1.63	0.66	mg/Kg wet	1.67		97.7	15-140			†
Pentachlorophenol	1.39	0.34	mg/Kg wet	1.67		83.2	30-130			
Phenanthrene	1.68	0.17	mg/Kg wet	1.67		101	40-140			
Phenol	1.57	0.34	mg/Kg wet	1.67		94.1	15-140			†
Pyrene	1.75	0.17	mg/Kg wet	1.67		105	40-140			
1,2,4-Trichlorobenzene	1.64	0.34	mg/Kg wet	1.67		98.2	40-140			
2,4,5-Trichlorophenol	1.65	0.34	mg/Kg wet	1.67		98.7	30-130			
2,4,6-Trichlorophenol	1.73	0.34	mg/Kg wet	1.67		104	30-130			
Surrogate: 2-Fluorophenol	*6.72*		mg/Kg wet	6.67		101	30-130			
Surrogate: Phenol-d6	*6.80*		mg/Kg wet	6.67		102	30-130			
Surrogate: Nitrobenzene-d5	*3.43*		mg/Kg wet	3.33		103	30-130			
Surrogate: 2-Fluorobiphenyl	*3.46*		mg/Kg wet	3.33		104	30-130			
Surrogate: 2,4,6-Tribromophenol	*6.98*		mg/Kg wet	6.67		105	30-130			
Surrogate: p-Terphenyl-d14	*4.22*		mg/Kg wet	3.33		127	30-130			
LCS Dup (B158064-BSD1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Acenaphthene	1.72	0.17	mg/Kg wet	1.67		103	40-140	1.48	30	
Acenaphthylene	1.65	0.17	mg/Kg wet	1.67		98.9	40-140	1.33	30	
Acetophenone	1.44	0.34	mg/Kg wet	1.67		86.2	40-140	2.95	30	
Aniline	0.939	0.34	mg/Kg wet	1.67		56.3	40-140	2.73	30	
Anthracene	1.72	0.17	mg/Kg wet	1.67		103	40-140	2.08	30	
Benzo(a)anthracene	1.79	0.17	mg/Kg wet	1.67		107	40-140	2.13	30	
Benzo(a)pyrene	1.86	0.17	mg/Kg wet	1.67		111	40-140	2.40	30	
Benzo(b)fluoranthene	1.77	0.17	mg/Kg wet	1.67		106	40-140	3.64	30	
Benzo(g,h,i)perylene	1.92	0.17	mg/Kg wet	1.67		115	40-140	6.87	30	
Benzo(k)fluoranthene	1.72	0.17	mg/Kg wet	1.67		103	40-140	1.76	30	
Bis(2-chloroethoxy)methane	1.65	0.34	mg/Kg wet	1.67		99.0	40-140	5.40	30	
Bis(2-chloroethyl)ether	1.49	0.34	mg/Kg wet	1.67		89.6	40-140	9.58	30	
Bis(2-chloroisopropyl)ether	1.46	0.34	mg/Kg wet	1.67		87.9	40-140	3.73	30	
Bis(2-Ethylhexyl)phthalate	2.08	0.34	mg/Kg wet	1.67		125	40-140	1.82	30	V-20
4-Bromophenylphenylether	1.77	0.34	mg/Kg wet	1.67		106	40-140	1.88	30	
Butylbenzylphthalate	1.99	0.34	mg/Kg wet	1.67		120	40-140	4.50	30	
4-Chloroaniline	0.861	0.66	mg/Kg wet	1.67		51.7	15-140	12.8	30	†
2-Chloronaphthalene	1.64	0.34	mg/Kg wet	1.67		98.1	40-140	3.13	30	
2-Chlorophenol	1.54	0.34	mg/Kg wet	1.67		92.5	30-130	1.48	30	
Chrysene	1.69	0.17	mg/Kg wet	1.67		101	40-140	3.64	30	
Dibenz(a,h)anthracene	1.82	0.17	mg/Kg wet	1.67		109	40-140	4.20	30	
Dibenzofuran	1.74	0.34	mg/Kg wet	1.67		104	40-140	1.71	30	
Di-n-butylphthalate	1.74	0.34	mg/Kg wet	1.67		105	40-140	2.01	30	
1,2-Dichlorobenzene	1.40	0.34	mg/Kg wet	1.67		84.2	40-140	4.00	30	
1,3-Dichlorobenzene	1.34	0.34	mg/Kg wet	1.67		80.6	40-140	4.96	30	
1,4-Dichlorobenzene	1.36	0.34	mg/Kg wet	1.67		81.8	40-140	5.33	30	

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B158064 - SW-846 3546												
LCS Dup (B158064-BSD1)				Prepared: 09/12/16 Analyzed: 09/13/16								
3,3-Dichlorobenzidine	1.08	0.17	mg/Kg wet	1.67		64.7		40-140	4.17	30		
2,4-Dichlorophenol	1.58	0.34	mg/Kg wet	1.67		94.5		30-130	3.64	30		
Diethylphthalate	1.70	0.34	mg/Kg wet	1.67		102		40-140	0.763	30		
2,4-Dimethylphenol	1.68	0.34	mg/Kg wet	1.67		101		30-130	3.84	30		
Dimethylphthalate	1.77	0.34	mg/Kg wet	1.67		106		40-140	0.320	30		
2,4-Dinitrophenol	0.759	0.66	mg/Kg wet	1.67		45.5		15-140	9.38	30		†
2,4-Dinitrotoluene	1.69	0.34	mg/Kg wet	1.67		101		40-140	2.72	30		
2,6-Dinitrotoluene	1.80	0.34	mg/Kg wet	1.67		108		40-140	5.37	30		
Di-n-octylphthalate	1.89	0.34	mg/Kg wet	1.67		113		40-140	0.532	30	V-20	
1,2-Diphenylhydrazine (as Azobenzene)	1.83	0.34	mg/Kg wet	1.67		110		40-140	3.63	30		
Fluoranthene	1.60	0.17	mg/Kg wet	1.67		95.9		40-140	0.753	30		
Fluorene	1.69	0.17	mg/Kg wet	1.67		101		40-140	1.25	30		
Hexachlorobenzene	1.76	0.34	mg/Kg wet	1.67		105		40-140	4.90	30		
Hexachlorobutadiene	1.54	0.34	mg/Kg wet	1.67		92.5		40-140	6.00	30		
Hexachloroethane	1.41	0.34	mg/Kg wet	1.67		84.3		40-140	4.90	30		
Indeno(1,2,3-cd)pyrene	1.90	0.17	mg/Kg wet	1.67		114		40-140	5.99	30		
Isophorone	1.64	0.34	mg/Kg wet	1.67		98.3		40-140	4.88	30		
2-Methylnaphthalene	1.67	0.17	mg/Kg wet	1.67		100		40-140	5.10	30		
2-Methylphenol	1.48	0.34	mg/Kg wet	1.67		89.0		30-130	1.45	30		
3/4-Methylphenol	1.60	0.34	mg/Kg wet	1.67		96.3		30-130	0.814	30		
Naphthalene	1.50	0.17	mg/Kg wet	1.67		90.2		40-140	6.04	30		
Nitrobenzene	1.52	0.34	mg/Kg wet	1.67		91.4		40-140	7.80	30		
2-Nitrophenol	1.57	0.34	mg/Kg wet	1.67		94.1		30-130	4.00	30		
4-Nitrophenol	1.63	0.66	mg/Kg wet	1.67		98.0		15-140	0.347	30		†
Pentachlorophenol	1.44	0.34	mg/Kg wet	1.67		86.3		30-130	3.61	30		
Phenanthrene	1.71	0.17	mg/Kg wet	1.67		103		40-140	1.95	30		
Phenol	1.53	0.34	mg/Kg wet	1.67		91.8		15-140	2.45	30		†
Pyrene	1.83	0.17	mg/Kg wet	1.67		110		40-140	4.22	30		
1,2,4-Trichlorobenzene	1.52	0.34	mg/Kg wet	1.67		91.2		40-140	7.43	30		
2,4,5-Trichlorophenol	1.69	0.34	mg/Kg wet	1.67		101		30-130	2.74	30		
2,4,6-Trichlorophenol	1.79	0.34	mg/Kg wet	1.67		108		30-130	3.33	30		
Surrogate: 2-Fluorophenol	*6.47*		mg/Kg wet	6.67		97.1		30-130				
Surrogate: Phenol-d6	*6.71*		mg/Kg wet	6.67		101		30-130				
Surrogate: Nitrobenzene-d5	*3.23*		mg/Kg wet	3.33		97.0		30-130				
Surrogate: 2-Fluorobiphenyl	*3.42*		mg/Kg wet	3.33		103		30-130				
Surrogate: 2,4,6-Tribromophenol	*7.07*		mg/Kg wet	6.67		106		30-130				
Surrogate: p-Terphenyl-d14	*4.42*		mg/Kg wet	3.33		**133**	*	30-130			S-07	

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B158062 - SW-846 3546										
Blank (B158062-BLK1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	*0.228*		mg/Kg wet	0.200		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.241*		mg/Kg wet	0.200		121	30-150			
Surrogate: Tetrachloro-m-xylene	*0.186*		mg/Kg wet	0.200		93.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.177*		mg/Kg wet	0.200		88.6	30-150			
LCS (B158062-BS1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Aroclor-1016	0.20	0.020	mg/Kg wet	0.200		101	40-140			
Aroclor-1016 [2C]	0.20	0.020	mg/Kg wet	0.200		102	40-140			
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		95.7	40-140			
Aroclor-1260 [2C]	0.20	0.020	mg/Kg wet	0.200		101	40-140			
Surrogate: Decachlorobiphenyl	*0.239*		mg/Kg wet	0.200		120	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.248*		mg/Kg wet	0.200		124	30-150			
Surrogate: Tetrachloro-m-xylene	*0.206*		mg/Kg wet	0.200		103	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.185*		mg/Kg wet	0.200		92.7	30-150			
LCS Dup (B158062-BSD1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Aroclor-1016	0.19	0.020	mg/Kg wet	0.200		96.7	40-140	4.15	30	
Aroclor-1016 [2C]	0.20	0.020	mg/Kg wet	0.200		98.5	40-140	3.57	30	
Aroclor-1260	0.18	0.020	mg/Kg wet	0.200		92.2	40-140	3.78	30	
Aroclor-1260 [2C]	0.19	0.020	mg/Kg wet	0.200		97.4	40-140	3.61	30	
Surrogate: Decachlorobiphenyl	*0.230*		mg/Kg wet	0.200		115	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.243*		mg/Kg wet	0.200		121	30-150			
Surrogate: Tetrachloro-m-xylene	*0.198*		mg/Kg wet	0.200		99.2	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.182*		mg/Kg wet	0.200		91.0	30-150			

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QUALITY CONTROL

Petroleum Hydrocarbons Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B158063 - SW-846 3546											
Blank (B158063-BLK1)				Prepared & Analyzed: 09/12/16							
TPH (C9-C36)	ND	8.3	mg/Kg wet								
Surrogate: o-Terphenyl	*2.70*		mg/Kg wet	3.33		81.1		40-140			
LCS (B158063-BS1)				Prepared & Analyzed: 09/12/16							
TPH (C9-C36)	22.6	8.3	mg/Kg wet	33.3		67.9		40-140			
Surrogate: o-Terphenyl	*2.88*		mg/Kg wet	3.33		86.4		40-140			
LCS Dup (B158063-BSD1)				Prepared & Analyzed: 09/12/16							
TPH (C9-C36)	21.8	8.3	mg/Kg wet	33.3		65.4		40-140	3.79	30	
Surrogate: o-Terphenyl	*2.71*		mg/Kg wet	3.33		81.3		40-140			
Matrix Spike (B158063-MS1)	**Source: 16I0369-02**			Prepared & Analyzed: 09/12/16							
TPH (C9-C36)	576	180	mg/Kg dry	36.0	456	**333**	*	40-140			MS-19
Surrogate: o-Terphenyl	*0.00*		mg/Kg dry	3.60			*	40-140			S-01
Matrix Spike Dup (B158063-MSD1)	**Source: 16I0369-02**			Prepared & Analyzed: 09/12/16							
TPH (C9-C36)	619	180	mg/Kg dry	36.0	456	**453**	*	40-140	7.23	30	MS-19
Surrogate: o-Terphenyl	*0.00*		mg/Kg dry	3.60			*	40-140			S-01

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B158122 - SW-846 3050B										
Blank (B158122-BLK1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Arsenic	ND	2.5	mg/Kg wet							
Cadmium	ND	0.25	mg/Kg wet							
Chromium	ND	0.50	mg/Kg wet							
Lead	ND	0.75	mg/Kg wet							
LCS (B158122-BS1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Arsenic	50.4	5.0	mg/Kg wet	57.0		88.4	77.8-122.1			
Cadmium	70.5	0.50	mg/Kg wet	77.8		90.7	81.9-118.2			
Chromium	60.9	1.0	mg/Kg wet	65.0		93.7	78.7-120.6			
Lead	85.3	1.5	mg/Kg wet	85.6		99.6	82.4-117.8			
LCS Dup (B158122-BSD1)				Prepared: 09/12/16 Analyzed: 09/13/16						
Arsenic	51.7	5.0	mg/Kg wet	57.0		90.7	77.8-122.1	2.55	30	
Cadmium	70.6	0.50	mg/Kg wet	77.8		90.8	81.9-118.2	0.143	30	
Chromium	58.4	1.0	mg/Kg wet	65.0		89.8	78.7-120.6	4.19	30	
Lead	74.8	1.5	mg/Kg wet	85.6		87.4	82.4-117.8	13.1	30	
MRL Check (B158122-MRL1)				Prepared: 09/12/16 Analyzed: 09/14/16						
Lead	0.756	0.75	mg/Kg wet	0.750		101	80-120			
Batch B158193 - SW-846 7471										
Blank (B158193-BLK1)				Prepared: 09/13/16 Analyzed: 09/14/16						
Mercury	ND	0.025	mg/Kg wet							
LCS (B158193-BS1)				Prepared: 09/13/16 Analyzed: 09/14/16						
Mercury	12.7	1.9	mg/Kg wet	12.3		104	73.7-126.3			
LCS Dup (B158193-BSD1)				Prepared: 09/13/16 Analyzed: 09/14/16						
Mercury	13.3	2.0	mg/Kg wet	12.3		108	73.7-126.3	4.62	30	

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B158089 - % Solids										
Duplicate (B158089-DUP3)	**Source: 16I0369-01**			Prepared: 09/12/16 Analyzed: 09/13/16						
% Solids	95.3		% Wt		95.7			0.419	20	
Batch B158294 - SM21-22 2510B Modified										
Blank (B158294-BLK1)				Prepared & Analyzed: 09/14/16						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B158294-BS1)				Prepared & Analyzed: 09/14/16						
Specific conductance	220		µmhos/cm	234		92.1	90.6-110			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B158062-BS1 Date(s) Analyzed: 09/13/2016 09/13/2016

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.20	
	2	0.00	0.00	0.00	0.20	1
Aroclor-1260	1	0.00	0.00	0.00	0.19	
	2	0.00	0.00	0.00	0.20	5

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B158062-BSD1 Date(s) Analyzed: 09/13/2016 09/13/2016

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
Aroclor-1016	1	0.00	0.00	0.00	0.19	
	2	0.00	0.00	0.00	0.20	4
Aroclor-1260	1	0.00	0.00	0.00	0.18	
	2	0.00	0.00	0.00	0.19	3

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
MS-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.
O-32	A dilution was performed as part of the standard analytical procedure.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
S-07	One associated surrogate standard recovery is outside of control limits but the other(s) is/are within limits. All recoveries are > 10%.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6010C-D in Soil	
Arsenic	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
SW-846 7471B in Soil	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8082A in Soil	
Aroclor-1016	CT,NH,NY,NC,ME,VA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1221	CT,NH,NY,NC,ME,VA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1232	CT,NH,NY,NC,ME,VA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1242	CT,NH,NY,NC,ME,VA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1248	CT,NH,NY,NC,ME,VA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1254	CT,NH,NY,NC,ME,VA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1260	CT,NH,NY,NC,ME,VA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA
Aroclor-1262	NH,NY,NC,ME,VA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA
Aroclor-1268	NH,NY,NC,ME,VA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA
SW-846 8260C in Soil	
Acetone	CT,NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	NH,NY,ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	CT,NH,NY,ME
sec-Butylbenzene	CT,NH,NY,ME
tert-Butylbenzene	CT,NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	CT,NH,NY,ME
4-Chlorotoluene	CT,NH,NY,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Soil	
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NH,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	CT,NH,NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NH,NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	CT,NH,NY,ME
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl tert-Butyl Ether (MTBE)	NY
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY
Naphthalene	NH,NY,ME
n-Propylbenzene	NH,NY
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,4-Trichlorobenzene	NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	CT,NH,NY,ME
1,3,5-Trimethylbenzene	CT,NH,NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME
SW-846 8270D in Soil	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Soil	
Aniline	NY,NH
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	NY,NH
1,3-Dichlorobenzene	NY,NH
1,4-Dichlorobenzene	NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine (as Azobenzene)	NY,NH
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8270D in Soil	
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2017
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2017
NY	New York State Department of Health	10899 NELAP	04/1/2017
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2017
RI	Rhode Island Department of Health	LAO00112	12/30/2016
NC	North Carolina Div. of Water Quality	652	12/31/2016
NJ	New Jersey DEP	MA007 NELAP	06/30/2017
FL	Florida Department of Health	E871027 NELAP	06/30/2017
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2017
ME	State of Maine	2011028	06/9/2017
VA	Commonwealth of Virginia	460217	12/14/2016
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2017

CHAIN OF CUSTODY RECORD

16I0369

Rev 04.05.12

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Page 1 of 1

Company Name: WESTON + SAMPSON | Telephone: 978 532 1900

Address: 5 CENTENNIAL DRIVE PEABODY, MA 01960 | Project #

Attention: FRANK RICCIARDI | Client PO#

Project Location: Wayland Public Library (JAPPE) | DATA DELIVERY (check all that apply): ○ FAX ☒ EMAIL ☒ WEBSITE

Sampled By: JAE | Fax #

Email: ricciarfa@wseinc.com; eatonj@wseinc.com

Format: ☒ PDF ☒ EXCEL ○ GIS ○ OTHER

Project Proposal Provided? (for billing purposes) ○ yes _____ proposal date | ○ "Enhanced Data Package"

COMM 07

Con-Test Lab ID (laboratory use only)	Client Sample ID / Description	Collection Beginning Date/Time	Collection Ending Date/Time	Composite	Grab	*Matrix Code	Conc Code	# of Containers	** Preservation	***Container Code
01	B-1	9/8/16	940	✓	✓	S	U	X		
02	B-2	9/8/16	1245	✓	✓	S	U	X		
03 01	C-1	9/8/16	1300	✓	✓	S	U	X		
04	B-3		1515	✓	✓	S	U	X		
05	B-4		1535	✓	✓	S	U	X		
06 02	C-2		1550	✓	✓	S	U	X		
07	B-5	9/9/16	1000	✓	✓	S	U	X		
08	B-6	9/9/16	1140	✓	✓	S	U	X		
09	B-7	9/9/16	1420	✓	✓	S	U	X		
10 03	~~B~~C-3	9/9/16	1475	✓	✓	S	U	X		
11	~~B-8~~	9/9/16	1440	✓	✓	S	U	X		

ANALYSIS REQUESTED

Comments: HOLD SAMPLES B-1, B-2, B3, B-4, B-5, B-6, B-7, B-8

Please use the following codes to let Con-Test know if a specific sample may be high in concentration in Matrix/Conc. Code Box:

H - High; M - Medium; L - Low; C - Clean; U - Unknown

Dissolved Metals
○ Field Filtered
○ Lab to Filter

***Cont. Code:**
A=amber glass
G=glass
P=plastic
ST=sterile
V= vial
S=summa can
T=tedlar bag
O=Other

****Preservation**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium bisulfate
X = Na hydroxide
T = Na thiosulfate
O = Other _____

*Matrix Code:
GW= groundwater
WW= wastewater
DW= drinking water
A = air
S = soil/solid
SL = sludge
O = other _____

		Date/Time:
Relinquished by: (signature)		9.9.16 1515
Received by: (signature)		9/9/16 1600
Relinquished by: (signature)		9/9/16 1810
Received by: (signature)	4.1°C	9/9/16 1810

Turnaround ††
☒ 7-Day
☐ 10-Day
☐ Other _____
RUSH †
☐ †24-Hr ☐ †48-Hr
☐ †72-Hr ☐ †4-Day
† Require lab approval

Detection Limit Requirements
Massachusetts:
Connecticut:
Other:

Is your project MCP or RCP ?
○ MCP Form Required
○ RCP Form Required
○ MA State DW Form Required PWSID # _____

NELAC & AIHA-LAP, LLC Accredited
WBE/DBE Certified

†† TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT

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East Longmeadow, MA. 01028
P: 413-525-2332
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con-test® ANALYTICAL LABORATORY

Sample Receipt Checklist

CLIENT NAME: Weston + Sampson **RECEIVED BY:** OMC **DATE:** 9/9/16

1) **Was the chain(s) of custody relinquished and signed?** **Yes** ✓ **No** ____ **No COC Incl.**

2) **Does the chain agree with the samples?** **Yes** ✓ **No** ____
If not, explain:

3) **Are all the samples in good condition?** **Yes** ✓ **No** ____
If not, explain:

4) **How were the samples received:**
On Ice ✓ Direct from Sampling ____ Ambient ____ In Cooler(s) ✓

Were the samples received in Temperature Compliance of (2-6°C)? **Yes** ✓ **No** ____ **N/A** ____

Temperature °C by Temp blank ____ Temperature °C by Temp gun 4.1°C

5) **Are there Dissolved samples for the lab to filter?** **Yes** ____ **No** ✓
Who was notified ____ Date ____ Time ____

6) **Are there any RUSH or SHORT HOLDING TIME samples?** **Yes** ____ **No** ✓
Who was notified ____ Date ____ Time ____

7) **Location where samples are stored:** Login

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: ____

8) **Do all samples have the proper Acid pH:** **Yes** ____ **No** ____ **N/A** ✓

9) **Do all samples have the proper Base pH:** **Yes** ____ **No** ____ **N/A** ✓

10) **Was the PC notified of any discrepancies with the CoC vs the samples:** **Yes** ____ **N/A** ✓

Containers received at Con-Test

	# of containers		# of containers
1 Liter Amber		16 oz amber	+3 (RLB)
500 mL Amber		8 oz amber/clear jar	
250 mL Amber (8oz amber)		4 oz amber/clear jar	
1 Liter Plastic		2 oz amber/clear jar	
500 mL Plastic		Plastic Bag / Ziploc	
250 mL plastic		SOC Kit	
40 mL Vial - type listed below	~~35~~ 12 (RLB)	Perchlorate Kit	
Colisure / bacteria bottle		Flashpoint bottle	
Dissolved Oxygen bottle		Other glass jar	
Encore		Other	

40 mL vials: # HCl ____ # Methanol +3 (RLB)
Bisulfate ~~22~~ 9 (RLB) # DI Water ____
Thiosulfate ____ Unpreserved ____

Time and Date Frozen:

Login Sample Receipt Checklist

(Rejection Criteria Listing - Using Sample Acceptance Policy)

Any False statement will be brought to the attention of Client

Question	Answer (True/False) T/F/NA	Comment
1) The cooler's custody seal, if present, is intact.	NA	
2) The cooler or samples do not appear to have been compromised or tampered with.	T	
3) Samples were received on ice.	T	
4) Cooler Temperature is acceptable.	T	
5) Cooler Temperature is recorded.	T	4.1°C
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	NA	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	T	
18) There is sufficient volume for all requsted analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	NA	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA	
21) Samples do not require splitting or compositing.	T	

Who notified of False statements? **Date/Time:**

 Log-In Technician Initials: CMC **Date/Time:** 9/9/16 1810

Weston & Sampson

MicroVision Labs Coal Ash Report, Job # 10125
Client Project#: 2160591.B
Client Project Name: Wayland Public Library

Scope of Work:

This report covers the methods and findings of the Coal/Coal Ash analysis that MicroVision Laboratories, Inc. conducted on one (1) soil sample submitted for testing from the Wayland Public Library project. The purpose of this analysis was to detect and document any coal, coal ash or wood ash that may be present in the submitted soil sample by use of a combination of microscopy techniques including SEM/EDS, PLM, and macroscopic inspection.

Methods:

The sample was dried and examined by eye and under the stereomicroscope for any suspect dark components to the soil. Dark suspect particles were separated from the soil sample and prepared for examination by Polarized Light Microscopy (PLM) and Scanning Electron Microscopy with Energy Dispersive X-Ray Spectroscopy (SEM/EDS).

For the PLM examination, the suspect particle types detected in the sample were ground in a mortar and pestle, mounted on glass slides in immersion oil (n=1.515) and covered with glass cover slips. These sample particles were then examined at various magnifications and digital images were taken.

For the SEM examination, the suspect particle types were mounted on an aluminum analysis stub with double sided adhesive tape, coated with evaporated graphite and examined under the SEM by EDS to obtain elemental data in the form of EDS spectra. Digital images were taken of the sample particles at various magnifications with the SEM.

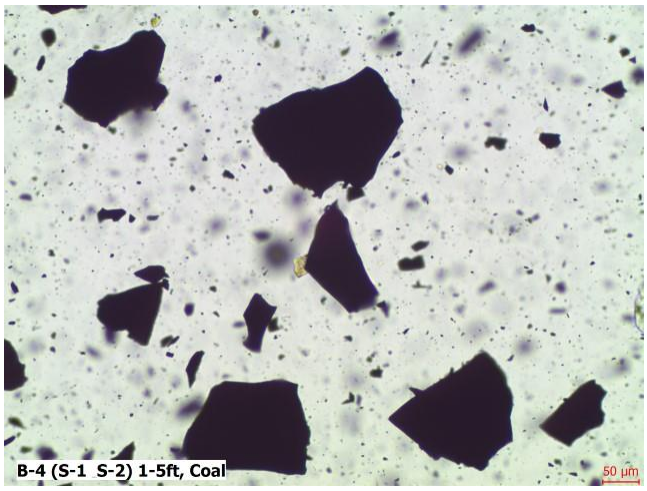
Findings:

The following pages display the data for each particle type detected in the sample for this project. Each page contains a PLM image, SEM image, and EDS spectrum for the particle types detected for this sample as well as particle type descriptions and observations.

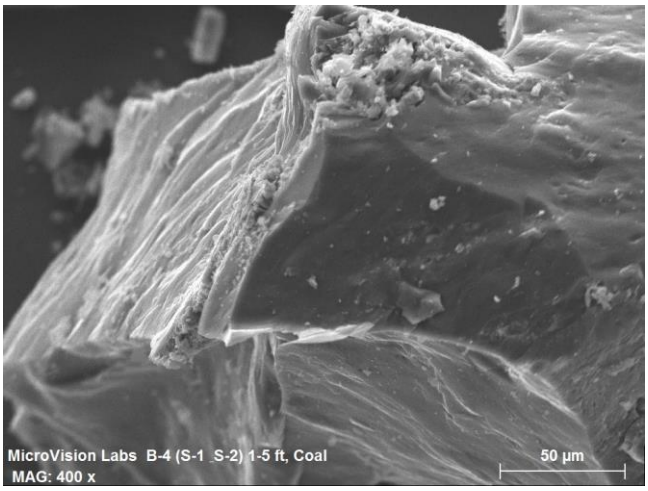
Sample: B-4 (S-1 & S-2) 1-5 ft.

Number of Suspect Particle Types: Two (2)

Coal: This particle type consisted of eight (8) shiny, black grains approximately 1-4mm in diameter. The PLM examination indicated this particle type to be consistent with coal. The PLM and SEM images of this particle type show the angular edges and typical conchoidal fractures found in coal.

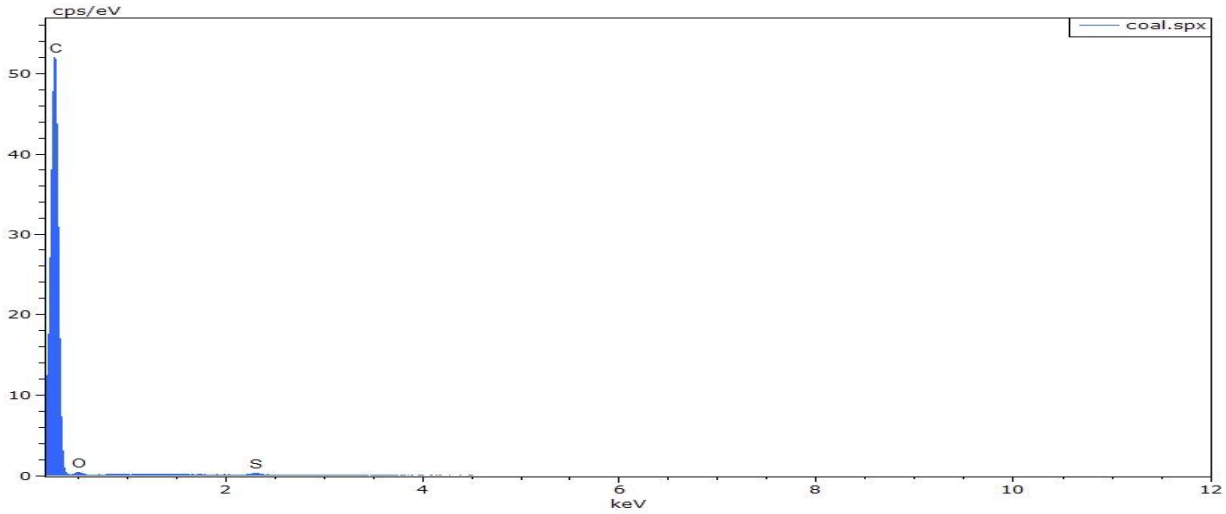


PLM Image



SEM Image

The EDS spectrum, shown below, confirms that this particle type is coal. The analysis for this particle shows concentrations of carbon, oxygen, and sulfur.



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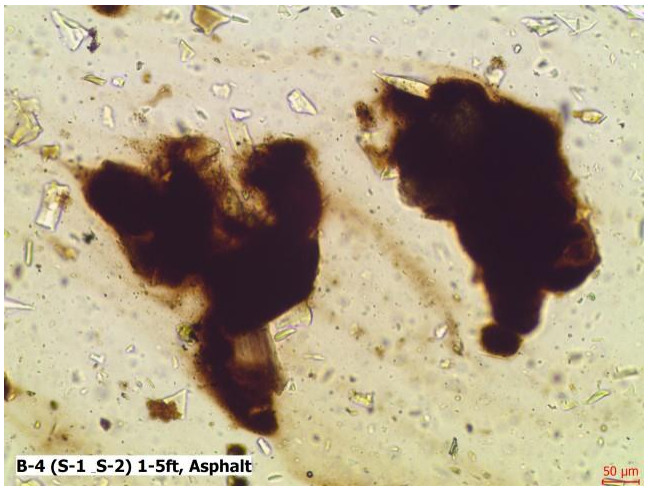
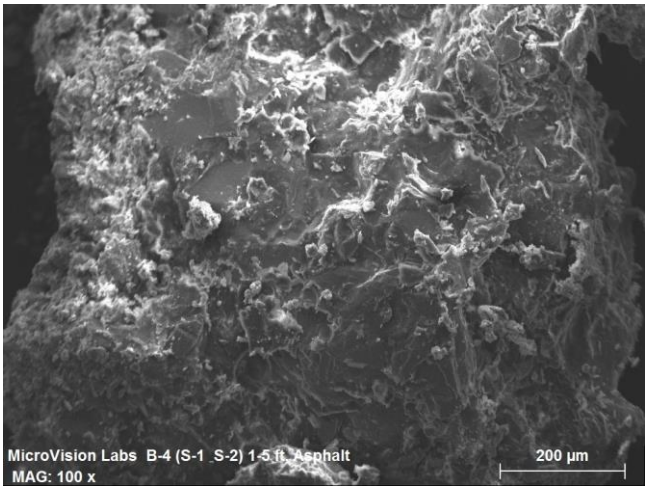
Phone: (978) 250-9909 Fax: (978) 250-9901 Email: Sales@MicroVisionLabs.com
www.MicroVisionLabs.com

Asphalt: This particle type consisted of twenty (20) ductile, black grains approximately 1-6mm in diameter. These grains had mineral matter embedded in and stuck to them. During the PLM examination, these particles slowly dissolved in the mounting oil which is a typical characteristic of asphalt. The PLM image shows the dissolving asphalt particles, and the SEM image illustrates the morphology of asphalt with the embedded mineral grains.

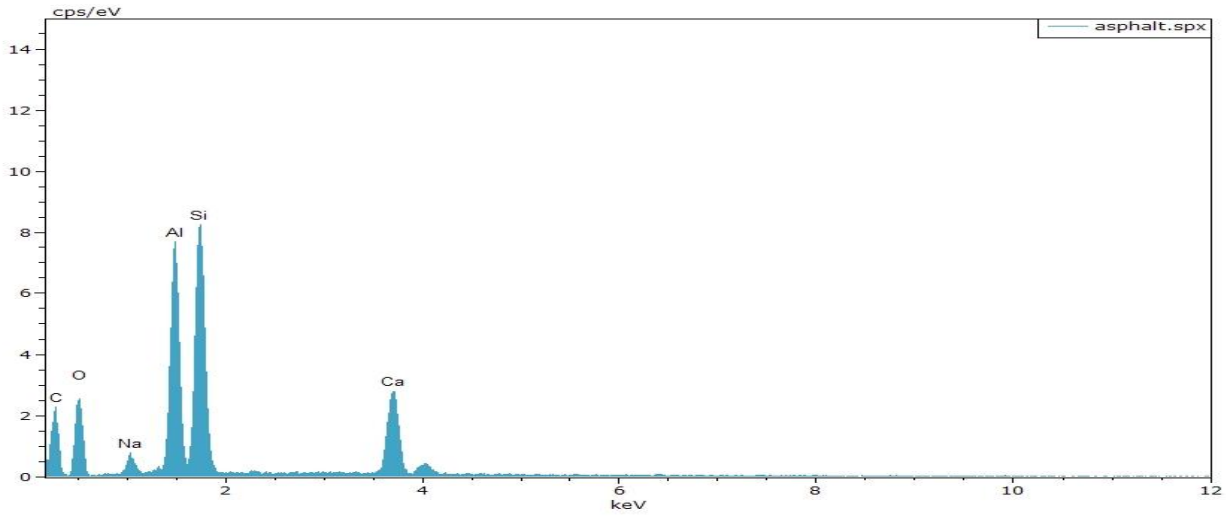


PLM Image



SEM Image

The EDS spectrum, shown below, indicates this particle type is asphalt. The analysis for this particle shows concentrations of carbon, oxygen, sodium, aluminum, silicon, and calcium.



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Results Summary Table:

Sample Name	Material Detected
B-4 (S-1 & S-2) 1-5 ft.	**Coal (light), Asphalt (moderate)**

The concentrations of the particle types detected in this sample are listed in parenthesis in the table above and are based on the number of particles found and the relative difficultly in finding them. The concentration information is listed for informational purposes only and has no bearing on exemption status.

Please let us know if you have any questions about this analysis or if there is anything else we can do for you.

Sincerely,

D W Bergstrom

Denise Bergstrom
Analytical Microscopist

Chain Of Custody

MicroVision Labs Job#: 10125

Client Information	Project Information
Client: Weston & Sampson	Project Name: Wayland Public Library
Billing Address: 5 Centennial Drive, Peabody, MA 01960	Project Location: 195 Main Street, Wayland, MA
Phone: 978-532-1900	Project Number: 2160591.B
Fax:	Project Manager: Christopher Palmer
Email: ricciarf@wseinc.com	PO#:

Sample ID	Collected Date	Sampler's Initials	Coal Ash Test	Lead Paint	SEM/EDS	PLM/Light Microscopy	Soot ID	Dust ID	Unknow Mat'l ID	FTIR	Polished Cross Section	Particle Size Analysis	Wildfire	Other
			Requested Analyses											
1) B-4 (S-1 & S-2) 1-5 ft.			✓											
2)														
3)														
4)														
5)														
6)														
7)														
8)														
9)														
10)														
11)														
12)														

Relinquished By:	Date/Time	Received By:	Date/Time	Turn Around Time and Notes:
[illegible]	10/3/16 9:12Am	[illegible]	10/3/16 9:15am	

Hazardous Contaminants: YES / NO If Yes, please list:

Analytical Report Requested: YES / NO

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