Materials Testing & Consulting, Inc.
Geotechnical Engineering • Materials Testing • Special Inspection • Environmental Consulting

November 30, 2017

Danette Brannin, *General Manager*
Mason Transit Authority
790 East Johns Prairie Road
Shelton, WA 98584

RE: Phase II Environmental Site Assessment
MTA Community Center – Proposed Parking Area
536 West Railroad Avenue (Parcels #32019-65-03905, #32019-65-03005)
Shelton, Washington

MTC Project No.: **17S182**

Dear Ms. Brannin:

Materials Testing and Consulting, Inc. (MTC) is pleased to present our report documenting the findings of the Phase II Environmental Site Assessment conducted for the above referenced project. This assessment was prepared in general accordance with the American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase II ESA Process* (ASTM E1903-11), as well as current standard industry practices.

The purpose of this Phase II ESA was to evaluate existing site conditions for the presence of remaining recognized environmental conditions (RECs) in order to provide current information regarding the presence, nature, and extent of contamination to assist the client in making informed decisions about the property in advance of proposed redevelopment. The complete results of our assessment, findings regarding existing site environmental conditions, opinions and recommendations are found in the following report.

If you should have any questions or require clarification of this report, please feel free to contact the undersigned. We welcome the opportunity to be of further service if required.

Respectfully Submitted,
MATERIALS TESTING & CONSULTING, INC.

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PHASE II
ENVIRONMENTAL SITE ASSESSMENT

Mason Transit Authority Community Center
Proposed Parking Area

536 West Railroad Avenue
Shelton, Washington

Prepared for:

Danette Brannin, *General Manager*
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November 30, 2017
MTC Project Number: **17S182**

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1 Executive Summary

At the request of Mason Transit Authority (MTA), the Client and User, Materials Testing and Consulting, Inc. (MTC) has performed a Phase II Environmental Site Assessment at the existing property at 536 West Railroad Avenue in Shelton, Washington. This environmental site investigation has been limited to the vacant exterior of the property fronting West Railroad Avenue to the south under same ownership, but does not include the transit facility property to the north or city-owned alley. This assessment was prepared in general accordance with American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase II ESA Process* (ASTM E1903-11), and current standard industry practices.

The subject property is currently owned by the MTA, and is under consideration for redevelopment as an outdoor parking area to service the existing public transit facility occupying the northern adjacent property. We understand the proposed development has triggered requirements for additional environmental site characterization, although the property previously underwent some extent of assessment and remediation by others, as summarized herein. The purpose of this Phase II ESA was to independently conduct an investigation of present-day site conditions, evaluate for the presence and extent of recognized environmental conditions (RECs) such as remnant contaminated soils, and best inform the client toward selecting suitable development practices. As applicable, this study and supplemental consultation are also intended to assist the client in interactions with and ultimately gaining approval from the Washington Department of Ecology (WA DoE) for the intended redevelopment.

The small on-site structure built in the late 1950s is currently used as a non-profit administrative facility. The exterior is a primitive parking lot and storage/staging area recently related to MTA transit station operations. Primary historic use reportedly included materials staging, storage, and loading by the local entity of the Simpson Timber Company when the railway fronted the site to the south. The timeframe of use is not constrained. Pre-purchase sampling in 2012 by others discovered local high concentrations of lead and oil-range petroleum products in surficial and buried fill soils, assumed to have originated from this use. A limited cleanup by excavation was completed in late 2012, when roughly half the site area was stripped to several feet depth to remove suspected affected soils at their greatest occurrence area. Approximately 180 cubic yards were removed, and confirmation sampling of the cleanup area was negative. Formal reporting was not done at the time, and the site was not granted closure by the WA DoE.

This study has included a general site-wide assessment of the existing subsurface for evaluation of known past recognized environmental conditions (RECs) and potential present-day RECs at the property, including namely the presence of remnant historic fill soils not removed during the 2012 remediation as well as the potential effects to underlying native soils from the shallow fills. This assessment has not included an evaluation of the existing structure for the presence of asbestos containing materials (ACM) or lead containing paint (LCP). Exploration beneath the existing structure or along dense utility corridors was also excluded from the scope of work.

Phase II ESA exploration activities included advancement of thirteen direct-push (geoprobe) borings to a typical depth of 10 feet, and supplemental shallow hand auger exploration and sampling at machine-inaccessible areas. Sets of soil samples from representative boreholes, soil horizons, and depths were analyzed for known hydrocarbon contamination (NWTPH-Dx) and total metals concentrations (RCRA 8 Metals). Sampling and analysis focused specifically on apparent historic fills or disturbed soils where encountered, with additional testing completed on interpreted native soils directly below the prior remediation zone and underlying remnant fills elsewhere on site. Groundwater was not encountered, and no monitoring wells were installed.

No results of soil analyses exceeded MTCA Method A cleanup standards at locations explored, although some localized petroleum and elevated metals concentrations were discovered to remain in association with historic fills or disturbed soils. Oil-range hydrocarbons were only found at low levels (160 mg/kg), and typically were not detected. Total lead levels were notably elevated at several locations (up to 200 ppm), approaching MTCA limits, but not to the degree encountered previously. All instances of affected soils were within remnant historic fills present outside of or at the margins of the prior remediation zone. We found no indication of underlying native soils affected by the historic site use. Historic site fills were found to be present at the surface to about 1.0 to 1.5 feet depth among much of the eastern and southeast parts of the site, and buried below shallow gravel fills in the southwest area and adjacent building perimeter.

In our opinion, the proposed development presents the potential for exposure or transmission of remnant contamination. Further cleanup actions may not be expressly required if the site were to remain undisturbed, given that MTCA standards appear to be met at this time. However, to ensure closure can be granted for site remediation, and as a discretionary measure during upcoming final development, we recommend additional cleanup excavation be completed to the extent feasible to remove remaining historic fills from the property. Voluntary cleanup actions should be coordinated with the DoE to seek review and approval toward site closure.

2 Introduction

2.1 Purpose

Materials Testing and Consulting, Inc. (MTC) was retained by the client, Mason Transit Authority (MTA), to conduct a Phase II Environmental Site Assessment (ESA) on the largely undeveloped property adjacent to the fully developed MTA Community Center site, an operational transit facility located at 601 West Franklin Street in Shelton, Washington. The targeted project area is subsequently referred to in this report as "the property" or "the site", and consists specifically of two 0.15-acre parcels (#32019-65-03905, #32019-65-03005) with street address of 536 West Railroad Avenue in Shelton, Washington.

MTC understands the property is proposed for development of an outdoor parking lot to serve the adjacent transit facility. The parking lot construction will require some shallow ground disturbance including soil tailings export, and is intended to employ direct stormwater infiltration measures (such as galleries, pervious pavement, or rain gardens; design to be determined). These factors have necessitated further environmental site characterization to determine if any contaminated soils remain on site that would impact design and construction procedures, and potentially call for additional remediation measures prior to final site development. The site underwent a targeted scope of environmental assessment and subsequent shallow excavation remediation in the recent past, the results of which are summarized in this report for background purposes. At the time of the previous work, the DoE was consulted on the cleanup action. However, no final determination was made, and the potential for contaminated soils remains.

Therefore, the primary purpose of this Phase II ESA was to independently conduct an investigation of present-day site conditions, in order to evaluate for the presence and extent of recognized environmental conditions (RECs) including but not limited to remnant contaminated surface soils related to historic site use. Secondary purposes of this investigation and supplemental consultations have included: informing the client of actual current site conditions for further consideration toward the proposed development and suitable construction practices; assisting the client with final DoE site review toward closure and development approval; and providing guidance in support of additional remedial actions if deemed necessary based on the results of the site investigation.

2.2 Scope of Services

The scope of work for this assessment is in general accordance with the American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase II ESA Process* (ASTM E1903-11), and current industry practices for Phase II Environmental Site Assessment. The site-specific scope detailed herein was executed for the purpose of evaluating recognized environmental conditions (RECs) known or suspected to be present on the property.

MTC's scope of services for project site investigation has included the following tasks:

- Review of Previous Work & Development of Investigation Scope
- Site Reconnaissance and Selection of Test Locations
- Directing and Documenting Subsurface Explorations (Push-probe & Hand Auger)
- Collection of Environmental Soil Samples
- Subcontracted Analytical Laboratory Analyses
- Evaluation of Field Data and Laboratory Results
- Interpretation of Site Environmental Conditions
- Preparing Report with Findings and Conclusions

Additionally, at request of the client, MTC visited an off-site location (Mason County gravel pit) to collect samples of stockpiled soils reported to have been exported from the project site during initial stripping. Methods and results of supplemental sampling are included within this report.

2.3 Special Terms and Conditions

This assessment has not included an evaluation of other potential environmental concerns existing on the site pertaining to the following: the possible presence of asbestos containing materials (ACM) or lead containing paint (LCP) in existing building structures. The findings and conclusions presented in this report apply only to the RECs and potential RECs on the exposed ground and its subsurface, assessed as detailed herein.

2.4 Limitations and Exceptions of this Study

This report has been prepared in accordance with generally accepted environmental assessment methods and practices, as referred to in ASTM E1903-11 *Standard Practice for Environmental Site Assessments: Phase II ESA Process*. No other warranties, expressed or implied, are made concerning the professional services provided under the terms of our contract and included in this report.

2.5 Limiting Conditions of Environmental Site Assessments

No Environmental Site Assessment is able to eliminate all uncertainties as to property environmental conditions. MTC's investigation reduces, but does not eliminate, uncertainty regarding recognized environmental conditions. The sampling and analysis described herein has attempted, within the time and cost limitations of the scope of study, to provide a general representation of site conditions. However, any surface or subsurface sample collected for analysis may or may not be representative of a larger population and thus the existing conditions in general. This assessment, including its findings and conclusions, employs professional judgment and site interpretations which are inherent to the process. Therefore, the findings and conclusions about the environmental conditions of the project site represent probabilities, not scientific certainties, and some level of uncertainty is unavoidable. The client should be aware that additional assessment activities may help to reduce the level of uncertainty.

Certain extenuating conditions can also be detrimental to the level of certainty within an assessment. Problematic subsurface conditions such as complex stratigraphy or hydrogeologic conditions, presence of variable fills and alterations from prior site development activities, and the potential for complex interaction of multiple contamination types and/or sources, may exist whether identified or unknown at the time of the interpretation. Limitations on site exploration locations due to buildings, utilities, and other obstructions as well as the intrinsic capability of subsurface testing methods and machinery employed also may contribute to uncertainties.

A Phase II ESA is site and time specific. It is applicable only to the site location for the given timeframe of the assessment. Field measurements, discoveries, data collected, and results of sample analysis represent site conditions at the time of field investigation. Therefore, the data and results presented herein may have a finite lifetime for accurate use and representation, depending on the intent and application of its usage. For considering its use beyond the original purpose and time of study, an appropriate timeframe for reliance on the findings of this study should be evaluated and at the discretion of the environmental professional.

As is generally the case with Phase II ESAs, the appropriate inquiry and scope of exploration used in conducting this assessment shall not be considered exhaustive. A reasonable balance was achieved between the cost and time demands of conducting the investigation and the need to reduce the uncertainty of environmental conditions. The scope of investigation was determined while considering in combination the known or suspected environmental conditions of the subject property, the needs and requests of the client, and the appropriate level of investigation

consistent with industry standard practices for assessment. If in the course of this Phase II ESA, hazardous substances or petroleum products are confirmed to be present on the site, further assessment may be recommended. The extent of additional work shall be at the discretion of the client upon considering the results presented herein, and undertaking or adjusting the degree of additional scope may be based on the client's acceptable level of certainty in order to become informed as to existing site conditions.

3 Background

3.1 Site Description and Features

The subject property is located at the street address of 536 West Railroad Avenue in Shelton, Washington, occupied by a small single-story structure and generally unimproved exterior. For the purposes of this study, the defined project site for environmental assessment is comprised of two parcels under same ownership with the existing transit facility to the north, located south of the city-owned paved alley and fronting West Railroad Avenue to the south. The site is situated between existing structures on fully developed properties at 522 and 628 West Railroad Avenue. The site location, project area boundaries and general existing conditions are illustrated on the attached Aerial Photo maps (Section 9.2).

3.1.1 Building Conditions and Existing Improvements

At present there is one small structure occupying the southwest portion of the project site. The building is a single story with a flat roof, and appears to be of concrete masonry construction. Recent use is understood as office/administration or small retail business space. According to Mason County records, the building is approximately 900 square feet in size by 10 feet in height, constructed in 1958. No prior structures are known to have been present within the study area.

3.1.2 Exterior Surface and Border Conditions

At the time of the field investigation, the majority of the site interior was surfaced by recently placed imported crushed rock or gravel fills and generally devoid of vegetation aside from small clumps of grass and weeds. The southern portion and eastern border area exhibited at the surface a varying mixture of disturbed native cover soils, imported gravels, and apparent historic grade fills. The alley running west of the existing structure was covered with grass at the surface.

The site has no vehicle access from West Railroad Avenue, and is fronted in its entirety to the south by a concrete sidewalk. The north boundary of the study area runs along the asphalt-paved alley, which allows for unobstructed vehicle access to the site interior. The east and west site boundaries are defined in full by existing structures of current light commercial or office use.

3.2 Physical Setting

3.2.1 Topography

Topography at the site and its immediate vicinity is roughly flat. No major grade changes or retaining walls are present in the realm of influence of the site. Within the site, the surface has been apparently altered during prior development, including some remaining historic shallow surface fills as well as more recent structural backfill in the previously remediated area. The actual extent of alteration is not confirmed via historical records, although current grade may be similar to original grade or marginally higher based on current relationship with surrounding areas and the findings of subsurface explorations.

The property is located in the middle of the Shelton city core. This area consists of a wide, flat to very gently eastward sloping glacial outwash plain which presently forms the confluence of several tributary creeks which then flow eastward to Oakland Bay. To the north and south of the site approximately 0.2 miles away in either direction, topography rises about 30 to 50 feet along slopes forming the confined valley walls. Topography resumes a typically gentle grade above the pronounced slope features.

3.2.2 Geologic Summary

According to the *Geologic Map of the Shelton 7.5-minute quadrangle, Mason and Thurston Counties, Washington* published by the USGS (Palmer et al., 2004) geology of the site vicinity and low lying areas to the west, north and south are comprised of Quaternary recessional outwash (Qgo) of the Vashon Stade, deposited by a mix of northern and Olympic source. Vashon recessional outwash is generally described as poorly sorted sand and gravel deposits with local occurrences of silt and clay interbeds. North and south of the project area, as topography rises out of the valley encompassing the Shelton core, deposits are mapped as Quaternary glacial till (Qgt) of the Vashon Stade. Till deposits are characteristically unsorted and generally overconsolidated from an overriding glacial ice sheet.

Site shallow soils are mapped by the NRCS Web Soil Survey as *Grove gravelly sandy loam*, formed from glacial outwash on outwash plains and consisting of gravelly sandy loam becoming more coarse-grained with depth past about 30 inches. The unit is somewhat excessively drained and classified as Hydrologic Group A, with depth to the water table and restrictive features listed at over 80 inches below native grade. The soil has a high capacity for water transmission.

3.3 Site History and Use

3.3.1 Current Use of Site

The project site structure is currently used by the non-profit United Way of Mason County as an administrative facility. A full review of the building use and reconnaissance of interior building conditions was not within the scope of this subsurface investigation.

The exterior majority of the site has been used recently as a primitive parking area for passenger vehicles related to adjacent MTA transit station operations. We understand the site has also been used on occasion by the MTA in recent years for storage and staging of materials and equipment.

3.3.2 Past Use of Site

Our understanding of prior site use is based solely on review of limited information provided by representatives of the current ownership, as well as discussion with the consultant involved in previous site evaluation and subsequent remediation (Lisa Palazzi formerly of J.W. Morrissette & Associates, Inc.). MTC does not attest to the accuracy of this information provided by others. At request of the client to focus the current scope of work, further inquiry into historical site use has not been done by MTC.

The building is understood to have been constructed in the late 1950s. No other permanent site improvements are known to have existed and been subsequently demolished prior to recent times. The site was reportedly employed historically as a materials staging, storage, and loading area by the local entity of the Simpson Timber Company. The site was in such active use in the period of time when the railway fronted the site along the corridor of what is now West Railroad Avenue. The timeframe of use is not revealed in the available records. Remnants of historic surface fills encountered by this investigation as well as fills and disturbed affected soils removed by the previous targeted remediation are assumed to have originated from this previous use. No other uses of environmental significance are known.

3.4 Summary of Previous Environmental Activities

For scoping purposes in advance of the current site investigation activities, MTC was provided and reviewed prior environmental assessment findings, remedial action information, and related project correspondences available from the client's internal files. At request of the client, no further document inquiries were conducted. We also spoke directly with the environmental

consultant involved in the previous phases of work (Lisa Palazzi formerly of JWM&A) to clarify and confirm their findings. No formal investigation report or remedial action report was produced at the time of the prior work. Pertinent findings and events of the previous work are summarized in order of occurrence below. This summary is not warrantied to be comprehensive, and MTC does not attest to the accuracy of the findings by others. If necessary, this information should be confirmed by consulting the original sources.

3.4.1 Environmental Sampling – February 2012

Property purchase under consideration in early 2012 by the current owner, MTA, prompted environmental exploration and sampling of the site to determine if any remedial action was needed as a result of potential impacts to the site environmental conditions from historic use. No previous environmental assessment or due diligence work is known. We assume a common knowledge of the prior site use led to a suspicion of affected soils on the site surface and at shallow levels resulting from discarded metals refuse and tailings as well as potential for low-volume diesel- and oil-range petroleum releases to the site surface.

A subsurface exploration and sampling event was conducted on February 15, 2012 by JWM&A. A total of four test pits were excavated at representative locations spread within the site interior. Complete field logs were not available; typical end depths of at least 10 feet are assumed based on scoping documents. All pits apparently surpassed fill soils into native conditions at an undocumented depth. A total of 11 jar samples were collected and submitted for hydrocarbon screening (HCID) and total metals analysis (RCRA 8), including samples from the surface and shallow fills as well as underlying native soils.

Their findings and interpretations are communicated in email summary to the client. Two of the eleven samples recorded significant lead concentration and oil-range hydrocarbons. One such sample was described as a "clinker" at the surface of one pit location, yielding oil-range content of over 6,000 ppm and total lead over 700 ppm. However, adjacent shallow fill soils tested did not display similar findings, lending to the interpretation of a local occurrence. Another shallow sample from directly beneath recent gravel fills at a separate location revealed detectable oil (over 100 ppm) and very high lead content (averaging over 900 ppm). Multiple other sample locations within shallow fills recorded elevated lead content ranging from 20 ppm to over 100 ppm locally, whereas other samples recorded lead at very low or non-detectable levels. Where lead was elevated, Barium and Chromium were typically higher than elsewhere. Testing of Chromium confirmed dominantly trivalent variety, not considered an issue.

Following identification of local occurrences of total lead and oil-range petroleum product in surficial or buried shallow fill soils at levels significantly exceeding MTCA cleanup standards for unrestricted land use, the consultant recommended communication with the WA DoE and assisted in scoping and logistics for remedial action. It was generally interpreted by JWM&A that the affected soils were confined to the upper few feet of the site subsurface, corresponding to the maximum extents of fills and disturbed soils which varied locally within the site, and that undisturbed native soils below were not directly affected by the historic site use.

3.4.2 Limited Remedial Action – October 2012

Remedial action was taken in the fall of 2012. Cleanup involved direct excavation of suspected contaminated soils, on-site stockpile treatment, and permitted export for landfill disposal of the soil waste. In total, an estimated 180 cubic yards (about 250 tons) of soil was removed from the site. According to communications with the former JWM&A staff involved in the cleanup, the primary excavation area was in the northwest portion of the site where high lead levels were discovered within buried fill soils below recent gravel cover. The excavation area reportedly extended behind the small structure to the site border along the paved alley, west to near the adjacent off-site building, and east through the north-central part of the property. The eastern third was used for stockpiling but apparently not excavated. No major excavation was reported for the southern part of the site fronting Railroad Avenue. The extent of surface soil removal in areas not excavated, if any, is not known.

The cleanup area was excavated to a reported depth of around 4 feet maximum. Two samples of soils from the excavation base and sidewall were analyzed for total lead content, finding 10 ppm and non-detectable concentrations which were in the range of typical background levels for native soils. No further excavation was done after the results of confirmation sampling came back negative. The excavation extent was reportedly limited to the west and southwest by existing buildings, and to the north by existing utilities and the paved alley. The west and north limits correspond closely to the legal site boundaries. It was acknowledged at the time that the on-site building directly southwest of the excavation area may overlie some affected soils given its construction in the late 1950s, and could require further action be taken upon its removal. However, the building remains in use at present and is not planned for demolition at this time.

We understand the WA DoE communicated with the client and consultant prior to the cleanup efforts, and was apprised of the results at the time of the work. No formal reporting was done, and the site was not given a formal review for "no further action" determination.

4 Phase II Methods & Activities

4.1 Scope of Assessment

MTC developed the scope of work for this Phase 2 ESA following a review of available documents pertaining to site environmental conditions, as summarized above. MTC environmental professional staff also held discussions with client representatives regarding the nature and extent of the work required toward final site assessment. A proposal was issued to the client and approved that included scoping of the approximate amount of test locations and time allotment for field exploration, plus a general plan for chemical analysis and anticipated samples. Actual test locations were to be elected after reconnaissance due to utility and access considerations, and adjusted if necessary during field operations based on findings. The final schedule of chemical analyses was also to be determined based on the results of field sample observations.

4.1.1 Exploration Plan

MTC agreed to conduct a site-wide environmental investigation for assessment of present-day conditions within the time and budget constraints of this study. Explorations distributed throughout the site were determined to be conducted within a single field day utilizing compact direct-push "geoprobe" technology performed by a third party contractor under direction and observation by MTC personnel. A minimum of 10 test locations were proposed to be advanced to a typical depth of 10 feet below present grade (BPG), including continuous sampling of subsurface soils via internal push-probe disposable sleeves and groundwater conditions estimated from soil moisture contents. All tests were planned to penetrate through upper fills and disturbed soils, if present, and terminate within native soils, increasing test depth if necessary. Continuous field screening for evidence of hydrocarbon contamination or suspicious debris within uncontrolled fills via visual methods was planned to aid in sample selection, with special emphasis on soils at the fill-native contact and near interpreted seasonal high groundwater level.

Based on previous explorations, it was deemed unlikely to encounter the groundwater table by termination depth at the time of explorations in the early fall season. Therefore, no well installations or groundwater samplings were included in the field plan. A contingency for temporary well insertion and return visit sampling was in place in the event that field conditions dictated.

4.1.2 Sampling and Chemical Analysis Plan

Considering a basic knowledge of historical site use and the results of prior sampling, targeted potential contaminants for the site subsurface included diesel- and oil-range petroleum hydrocarbons as well as elevated metals analytes (primarily Lead). Laboratory analyses selected for use included quantitative diesel/oil-range analysis (NWTPH-Dx) and total metals screening (RCRA 8 Metals).

The proposed sampling plan prescribed that representative soil samples from each borehole be collected for both RCRA Metals analysis and quantitative Hydrocarbon Screening (Dx range), at minimum one set per borehole. Samples were planned to be taken as possible based on sample recovery in order to adequately assess existing shallow fill soils if encountered, as well as native soils which have the potential to have been affected by downward transmission of contaminants from the surface conditions. Samples were also gathered if visual or olfactory evidence of potentially affected soils was observed. For practical application of the sampling plan, two sets per location were anticipated to allow for redundancy and additional analyses if deemed necessary. At the conclusion of the field operations, representative sample sets from the actual conditions encountered would be selected for analysis in accordance with the approved scope.

Any supplementary shallow sampling, if collected via surface retrieval or hand auger borings, was planned to follow the same procedure for field visual screening and test selection.

4.1.3 Deviations from the Proposed Plan

There were no deviations from the proposed plan of work defined prior to commencing field activities, excepting minor adjustments made based on selection and number of test locations and field screening results. These changes were anticipated in the nature of the plan of study.

Aside from prior known limited access to certain areas of the site due to permanent obstructions, utilities, and existing structures, no other limiting factors were encountered that would have dictated eliminating or significantly relocating test locations.

Sampling of soil media were successful at all attempted locations. Where noted on field exploration logs, poor sample recovery occasionally limited sample availability. However this phenomenon did not occur to a limiting extent which would hinder the reliability of the work.

4.2 Field Explorations and Methods

4.2.1 Test Borings

Site exploration activities were performed on October 19, 2017, and involved advancing a total of 13 boreholes using a truck-mounted direct-push mechanism performed by a third-party contractor. Exploration operations were directed by MTC personnel and test locations were selected prior to commencement work as discussed above. All test borings were advanced to the planned depth of 10 feet BPG and terminated within interpreted native soils. Boring locations were numbered in order of completion, irregardless of spatial relationship within the site. All exploration locations are shown on the site plan aerial photo in Appendix 9.2, Figure 2.

Borehole GP-1 was advanced in the north part of the alley west of the existing structure, in the southwest quadrant near the west edge of the site. Boreholes GP-2 through GP-5 as well as GP-7, GP-12, and GP-13 were advanced in the northwestern and central area of the site, within or near the margins of the prior remediation zone. GP-6 and GP-8 were advanced among the eastern third of the site, where excavation stockpiles were kept during the remedial excavation. GP-9 was advanced in the southeast corner of the site, approximately 30 feet north and west from the site boundaries. GP-10 and GP-11 were advanced approximately 25 feet east of the existing building near the south and north ends respectively.

Soil samples were recovered at 5-foot continuous intervals in disposable plastic sleeves and documented by MTC prior to analytical sample collection. An MTC geologist visually examined and logged soil characteristics in accordance with the Unified Soil Classification System (USCS), presented for reference in Appendix 9.4. Stratigraphic depths were estimated by extrapolating the compacted soils over a 5-foot section, and thus are approximate. Complete results of borehole advancement are provided on our exploration logs attached in Appendix 9.4. Photodocumentation of all sample intervals is presented in Appendix 9.3.

4.2.2 Supplemental Hand Auger Sampling

A supplemental hand auger boring was performed on October 19, 2017 by MTC personnel at a select location west of the small building, approximately 15 feet north from Railroad Avenue. The location was not feasible for geoprobe exploration due to limited access and concern of proximal utilities. HA-1 was advanced to 1.5 feet BPG and terminated at difficult advancement within native soils. Documentation and sampling procedures were consistent with methods used for the direct-push boreholes. Hand Auger logs are also attached in Appendix 9.4.

4.3 Sampling and Chemical Analyses

4.3.1 Soil Samples

Soil samples for chemical analysis were selected from continuous samples retrieved at each borehole location as well as directly within supplemental hand auger borings based on the results of visual field screening and generally as prescribed in the above sampling plan. For each boring, sample depths are noted on the exploration logs in Appendix 9.4. Sample conditions are also photodocumented within the images presented in Appendix 9.3. A total sample list is provided for reference in Appendix 10.1, Table 1.

Soil samples were retrieved directly from the continuous sample sleeve into laboratory-provided sterilized sample jars via grab methods with a stainless steel spoon. Representative portions were divided equally between jars for each sample set. Sampling tools were cleaned within an aqueous detergent bath (Aquanox) and rinsed with distilled water between each sample depth and location to limit potential for cross-contamination. Samples were immediately labeled, sealed and placed on ice in coolers for temporary storage, then delivered to Environmental Services Network Northwest (ESN) upon completion of sampling at the end of the field day. Standard Chain of Custody (CoC) procedures and documentation requirements were followed. Submitted CoC forms are attached with the complete laboratory results in Appendix 9.5.

Soil samples selected for analytical laboratory analysis are noted in Table 1 of Appendix 9.1. Sample sets are listed by test location, approximate depth below present grade (BPG), and interpreted soil conditions. Third-party analytical laboratory services were performed by ESN of Olympia, Washington. Per the project proposal and sampling plan, soils analyses ordered included quantitative diesel/oil-range hydrocarbon analysis (NWTPH-Dx) and total metals screening (RCRA 8 Metals).

4.4 Sampling of Off-Site Stockpiles

At request of the client, MTC visited an off-site location to perform environmental sampling of stockpiled soils reported to have been stripped from the site during recent grading preparations for parking improvements. The soils were apparently transported to a Mason County gravel pit and earth materials storage site via dump truck and deposited in a cluster of end-dump piles of about 7 to 10 yards maximum. Total volume was reported to be under 100 yards. The purpose of the sampling was to assess likely contaminant contents for determining disposal requirements.

MTC personnel visited the stockpile site on October 17, 2017 to observe the soil conditions and collect samples for environmental analysis. The storage site is located roughly 3 miles west of Shelton on Coquallum Road. Upon arrival, we observed the soil piles to be confined to a small, inactive area of the site. We estimated total volume to be in the range of 60 to 80 yards. The existing piles were observed to be relatively uniform in composition, with no major variations observed. Soils generally consisted of a mixture of prior imported crushed rock surfacing along with silty sand to sand with gravel resembling shallow native soils. No obvious affected soils, debris, stains, odors, or sheens were visible at the surface of the stockpiles.

A total of six representative composite samples were collected. For sampling, six approximately equal zones were established. Each composite sample was composed of a minimum of three random grab sample locations per zone, mixed then divided into two sterilized glass jars per sample set. Sampling procedures were conducted in accordance with WA DoE recommendations for environmental sampling of soil waste for determining disposal or reuse criteria. Sampling equipment was decontaminated on site between each zone to limit cross-contamination potential.

Per DoE minimum testing guidelines for stockpile volumes under 100 yards, three sample sets were selected for laboratory testing. All samples were submitted to ESN on the date of sampling. Sample sets were analyzed for diesel- and oil-range hydrocarbons (NWTPH-Dx) and TCLP Metals. Results are reported separately, summarized in Appendix 9.1 and attached in full in Appendix 9.5.

5 Evaluation and Presentation of Results

5.1 Subsurface Conditions

5.1.1 Soil Conditions

Soil conditions within the study area to maximum depths explored in this study (10 feet BPG) were broadly consistent among all explorations. Native deposits were interpreted to be indicative of coarse-grained glacial recessional outwash capped with relatively fine-grained alluvial flood plain deposits beneath various historic and recent surface fills or disturbed soils. Depth to native soils ranged from as little as 0.5 feet to around 1.0 feet BPG among a majority of the site interior, up to a maximum of 2.5 to 3.0 feet BPG within the area of prior remedial excavation and backfill in the northwest and north-central part of the site.

Native soils included an upper silty sand to sandy silt unit extending to an average depth of 5 feet BPG to as deep as 7 feet BPG locally. This soil consisted of fine-grained sand with silt content ranging from an estimated 30 to 60 percent, coarsening with depth. Color was reddish brown becoming light brown or tan with depth, and mottling was commonly observed but variable in depth and intensity. Density was loose and moisture content was overall damp to moist.

Below the upper unit, silty gravel with sand was observed to extend to termination depth at all locations. This soil was interpreted to correlate with mapped regional outwash deposits. Fines content ranged from as little as 10 to 15 percent up to 20 to 25 percent locally. To depth, the soil was generally medium dense and damp to moist, medium gray-brown with variable mottling.

Surface fills were divided into two units based on provenance and content, as labeled on the soil logs in Appendix 9.4. Recent clean imported gravel fills are understood to have been placed following remedial excavation. Their occurrence is limited to the northwest and north-central part of the site, with exception of location GP-10 near the south-central border which was capped with about 1 foot of imported gravel fill (possibly from a separate fill event). Other areas of the site surface exhibited some apparent imported gravel intermixed with previous site fills.

Uncontrolled historic fills consisting of a highly variable mixture of sand, silt, and local gravel were found to remain to a limited extent at the surface or below recent gravel fills. These soils are correlated based on appearance and understanding of site conditions with known affected fills targeted in prior remediation. The unit was typically dark in color, loose or soft, and 0.5 to

1.0 feet thick where discovered. Historic fills were generally absent or locally occurring as thin bands below imported gravel fills among the northwest and north-central part of the site, and were not observed in the narrow area between the on-site building and adjacent structure to the west. Historic fills were commonly encountered at the surface to about 1.0 to 1.2 feet BPG among the southern and east-central parts of the site, outside of the prior remediation zone.

5.1.2 Groundwater Conditions

No surface water features are mapped in close proximity to the site, and none were observed during field operations. At the time of explorations, a large puddle of standing water was present in the north-central part of the site as a result of heavy rains. Moisture contents of samples in the vicinity of the puddle were generally elevated compared to elsewhere, suspected to be a result of latent surface water entering the push-probe cavity during advancement.

No groundwater table or obvious signs of free water seepage from perched or trapped water conditions were observed during explorations or interpreted from sample observations. The conditions observed are assumed to represent a seasonally reduced water level akin to typical dry season or early fall conditions given the timeframe of the field work in mid-October. It is reasonable to expect that groundwater table level could rise to within 10 feet of the surface during the winter months. Although soil survey data indicates greater than 6.5 feet depth to seasonal high water, anecdotal evidence provided by the client suggests groundwater may have been encountered if investigation was done in the mid- to late wet season under peak conditions.

Mottling was observed commonly in native soils through end depth, but was generally variable and inconclusive in nature as opposed to concentrated or banded. This lends to our interpretation that it results from downward infiltration and transient interflow within the vadose zone, as opposed to wetting and drying from water table rise and fall. However, it should be understood that for coarse-grained soils these patterns can be difficult to distinguish. The high-gravel soils at depth may be subject to seasonal water table inundation without displaying heavy mottling. Regardless of fluctuations at depth, it appears unlikely that water levels could rise to the shallow depths required to directly interact with the soils of primary concern in this study.

MTC's scope of investigation did not include documentation of seasonal variations, conclusive measurement of groundwater elevations at the time of exploration, or determination of regional groundwater levels past the depths explored.

5.2 Analytical Results

5.2.1 Results of Soil Analysis

Laboratory results from analyses of soil samples collected at the project site are summarized in Tables 2 and 3 of Appendix 9.1. Results of NWTPH-Dx analysis (Table 2) indicate that diesel- and oil-range petroleum hydrocarbons were most typically not present above laboratory minimum detection/reporting limits (50 mg/kg and 100 mg/kg, respectively) in sampled soils elected for testing. Tested samples included all encountered horizons interpreted as historic fill, as well as representative samples of native soils underlying the shallow fills. Detectable concentrations of oil-range petroleum products were discovered at one borehole location from the east-central portion of the property (GP-8 @ 0.6'), at a low level of 160 mg/kg. Washington State MTCA Method A cleanup standards for oil-range hydrocarbons in soil are significantly higher for unrestricted land use (2,000 mg/kg). The registering sample is notably from a very shallow depth, within 1 foot of the current surface. It is possible that the low contents discovered could have resulted from more recent site use as a primitive parking area, as the concentration is in the range commonly observed in street waste sediment.

Results of RCRA Total Metals analysis are summarized in full in Table 3. A majority of the eight analytes were not detected (ND) within laboratory minimum reporting limits. Barium and Chromium were detected at virtually all tested samples, but were generally in the range of or below naturally occurring background levels except where in the presence of other elevated metals. Background concentrations are published by the Washington State Department of Ecology, and referenced from *Natural Background Soil Metals Concentrations in Washington State* (Publication No. 94-115, 1994). The site vicinity is within Group "P", which includes various Puget Sound bordering areas. For reference, the applicable background levels (90^{th} percentile) and Washington State MTCA standards for cleanup levels are shown in Table 3. Chromium was detected over background up to a maximum of twice the published background level for the site region (around 100 ppm versus about 50 ppm natural) at several locations. Prior site assessment determined Chromium on site is predominantly trivalent, which has an MTCA cleanup level of 2000 mg/kg.

Lead was detected at most locations, and found to significantly exceed background levels within several samples collected from the historic fills. All such fills tested displayed some detectable lead, versus native samples which were mostly free of detectable lead. Two fill samples recorded high values of 130 and 200 mg/kg. The first (GP-8 @ 0.6') corresponds to the location

of oil detection at the eastern end of the site noted above. The second (GP-12 @ 1.4') represents a remnant of unremoved historic fill present below recent gravel backfill at the northwestern corner of the site, at the margin or outside of recent remediation efforts.

5.2.2 Results of Stockpile Testing

Laboratory results from analyses of off-site stockpile composite samples are summarized in Tables 2 and 4 of Appendix 9.1. Diesel-range product was not detected in any of the three tested samples (< 50 mg/kg). Oil range product was detected in one of three samples at an average level of around 150 ppm, equivalent to the single discovery of the on-site sample at GP-8.

Metals were analyzed using TCLP methods in preparation for disposal at an accepting facility if required. In all samples, most analytes were not detected (ND). Barium was detected at low levels just above the laboratory minimum reporting limit. Barium is expected to yield the highest concentrations based on natural background levels, and is not assigned a cleanup limit per the MTCA. Barium typically has a very high acceptance cap in comparison to other tested metals (on the order of 2000 ppm versus 100 ppm or less for all others based on our past experience). Therefore, the Barium readings are not interpreted as evidence of high metals levels in the stockpiles.

6 Discussion of Findings and Conclusions

6.1 Recognized Environmental Conditions

This study has performed a site-wide assessment of existing soil conditions for evaluation of known past recognized environmental conditions (RECs) and potential present-day RECs at the property. The known past REC consists of oil-range petroleum and heavy metals (lead) contamination resulting from historic site use by a timber company for railroad shipping and related operations. The historic use is understood from a previous consultant's work to have impacted shallow subsurface soil conditions primarily among the western and northern portion of the site, necessitating a cleanup excavation for removal of historic fills or disturbed soils and potentially affected underlying native soils to a few feet depth which locally exceeded MTCA cleanup standards. Related potential present-day RECs include the possible presence of remaining soils affected by the prior site use not discovered and removed during the targeted remediation, either below the remediation zone or among other areas of the site. This study has not included evaluation of the existing structure for the presence of asbestos containing materials (ACM) or lead containing paint (LCP), which is outside the prescribed scope of work and typical practices for Phase 2 environmental assessment.

Results presented herein illustrate that some historic fills associated with the petroleum and metals contamination remain to a limited extent at the site surface or buried shallowly below recent clean imported gravel fills. At one tested location, these soils yielded detectable but low concentrations of oil-range hydrocarbons. High total lead levels exceeding 50% of the MTCA Method A cleanup limit were discovered within these soils at two shallow locations at the margin of or outside the prior remediation zone. The present study has not identified petroleum hydrocarbons or metals concentrations exceeding MTCA Method A cleanup standards at any tested location. Therefore, we interpret the site to remain impacted to a limited extent by the historical REC. But the level of occurrence does not necessarily represent a present-day REC in comparison to cleanup standards and action requirements.

6.2 Affected Media

Affected soils documented in this study are limited to the interpreted historic fill or disturbed soil horizon occurring at shallow levels. No evidence of hydrocarbons or elevated metals was

discovered within underlying native soils. This is consistent with the findings and interpretations by previous consultants.

Prior work by others reportedly did not encounter groundwater within the likely realm of effect from the presence of shallow contaminated historic fill soils. The findings of the current study have also indicated groundwater is not directly involved within the realm of concern, and no groundwater sampling was performed. At the time of the current field explorations in dry season conditions, groundwater was not encountered by 10 feet BPG. It is possible that wet season water levels rise to within 10 feet of the surface, however we interpret based on mottling evidence and common site knowledge that groundwater is unlikely to rise to shallow levels (5 feet depth or less).

6.3 Accuracy and Coverage of Investigation

The expressed purpose of this environmental investigation was to provide a reasonable coverage of site-wide conditions, in order to assess the likelihood of remaining impact to the site from historic sources and uses as summarized above. This approach allows for a broad understanding of present-day environmental conditions following previous assessment and targeted remediation efforts by others. For any subsurface investigation, a balance must be achieved between the amount of explorations and the lateral extent of coverage for a given scope of work to be suitable in meeting project goals at the time of the study. In the event that a greater detail of understanding or level of confidence is desired, additional targeted investigation may be elected by the client.

Site explorations were performed to depths surpassing the zone of known affected conditions, and determined to be sufficient for encountering all known or suspected hazardous substances and petroleum products that may likely be present at the site. The schedule of visual field screening and analytical soil sampling was also performed to a reliably diligent level at each exploration location.

It is our opinion, based on the findings reported herein and the actual site conditions encountered, that the level of site investigation employed is sufficient for the purpose of assessing present-day conditions to a reliable level. No additional investigation for site characterization appears warranted at this time.

6.4 Opinions & Conclusions

6.4.1 MTA Site Investigation

Laboratory results from This Phase 2 ESA has identified some localized occurrences of petroleum- and metals-impacted soils remaining on the property interpreted to correlate with grade fills, disturbed, or intermixed soils resulting from historic site use. Oil-range hydrocarbons were only detected in one sample from a near-surface location at low level (160 mg/kg). No locally high concentrations were encountered as occurred in the pre-remediation assessment (finding of over 6,000 mg/kg), and visual screening did not reveal obvious evidence of petroleum contamination. Total lead levels were notably elevated in the same sample (130 ppm), as well as at another occurrence of the historic fill soil (up to 200 ppm). A third location recorded lesser but still likely elevated levels (averaging about 50 ppm). No locally high concentrations were encountered to the degree reported in the original assessment (700 and 900 ppm), but results were otherwise similar when testing the historic fills (locally elevated over 100 ppm).

We found no evidence from visual screening or environmental sample analysis which would indicate the underlying native soils are detectably affected by the surficial activities of the prior site use. Groundwater at depth past our exploration extents does not appear to be involved with the past contamination or present-day remnants at shallow levels near the site surface. These findings are consistent with the conclusions of prior consultants.

No concentrations of tested samples exceeded MTCA Method A cleanup limits for unrestricted land use. It is our opinion that the results are broadly representative of present-day conditions given the coverage of our explorations and laboratory testing program, and therefore no additional sampling is recommended for further site characterization. However, it should be understood that such historic fills and disturbed soils can be highly variable, and local concentrations may still persist on site approaching or even exceeding MTCA standards that were not discovered in the course of this investigation. This potential is interpreted to exist where the historic fills remain. Most significantly, this occurrence includes the upper approximately 1.0 to 1.5 feet from the existing surface among the eastern third and southern portion of the site (GP-8, GP-9 GP-11), areas understood to be outside of the prior remediation zone. We also noted its presence at the margins of the remediation zone and near to the north and east of the existing structure beneath recent gravel fills (GP-10, GP-11, GP-12, GP-13). No indications of the historic fill were observed to remain beneath the main extent of the remediation zone, or in the narrow corridor between the structure and building to the west.

6.4.2 Stockpile Conditions

The stockpile of soils exported from the subject property during recent stripping for development preparations was assessed in accordance with DoE guidelines for determining restrictions on reuse or disposal options. The soils were visually examined and appeared to consist in majority of crushed rock, sand, and gravel which are likely to have been clean imported fills removed from the property. Given that the historic affected fills are present at the surface in portions of the site, it is likely that some of this material was also exported, although observation of the stockpile did not indicate a significant component of affected fills or the presence of notable historic debris.

Out of three representative samples, oil-range product was detected at low level in only one sample (about 150 ppm). TCLP analysis revealed no detectable lead or other regulated metals in any sample, and only very low Barium. It is possible that the low detected hydrocarbons resulted from recent parking and staging use at the site, or from stripping and transport, in addition to the potential to result from intermixing of the affected historic fill soils.

Based on DoE guidelines for reuse and disposal of petroleum-contaminated soils, the stockpile appears eligible for use as commercial or municipal site fill above the water table (oil-range product between 100 to 200 ppm) or for road construction, and should not require disposal at a landfill or waste facility. This category allows for a bulk lead level of up to 50 ppm, which appears satisfied given the results of TCLP analysis, visual assessment of the stockpile contents, and our findings and interpretations of overall origin site conditions. We recommend verifying the proposed disposal or reuse with the DoE project contact prior to taking action. Approved uses may include simply spreading at the current gravel pit location, and covering with clean fill if necessary.

7 Recommendations

MTC recommends the client consider the findings of this Phase 2 ESA and its exploration survey of present-day conditions in light of the proposed site improvements. We understand the property is proposed for redevelopment as an auxiliary parking area to support the adjacent MTA transit and community center facility. Surfacing is likely to be gravel, and the project will likely include some on-site infiltration of stormwater via pervious surfacing or rain gardens.

In our opinion, the site preparation activities toward development and the planned on-site stormwater infiltration aspects may present the potential for exposure or transmission of remnant contamination to the public or underlying native conditions. The results documented herein do not exceed MTCA cleanup limits for unrestricted site use, and as such further cleanup actions may not be expressly required if the site were to remain undisturbed. However, previous remediation was purposed with removing the historic impacted fill soils, and our findings indicate these soil conditions remain among some parts of the site. We also understand the site has not been reviewed and granted closure by the DoE following the prior activities.

As a discretionary measure, we recommend additional cleanup be completed prior to or during site preparation for lot development to mitigate to the extent feasible the presence of remaining historic fills. We anticipate such work will not require demolition of the existing structure or disturbance along concentrated utility corridors. Primarily, we anticipate this action would entail stripping of the upper 1.0 to 1.5 feet of the site surface where historic fills are present (east and southeast areas), as well as excavation through recent clean gravel cover to remove buried fill horizons within 2 to 3 feet of the surface where possible (southwest area and near building perimeter). All soils removed suspected to contain petroleum and metals contamination are recommended to be sampled and tested for determining suitable disposal or reuse criteria in accordance with DoE guidelines and accepting facility standards. The results of sampling prior removed soils stockpiled off-site conducted supplemental to this study and reported herein are valid only for those materials; the findings and conclusions reached are not intended to apply to newly excavated soils which must be subject to testing at the time of removal.

We recommend consulting with the DoE to establish a mutually agreed cleanup action plan prior to completing any voluntary cleanup work in order to ensure site closure can be achieved. MTC can be contacted for additional environmental consulting in the planning phase, and for documentation and confirmation sampling as may be needed during the final remedial process.

8 Closing and Signatures

MTC has performed a Phase 2 Environmental Site Assessment on the subject property at 536 West Railroad Avenue in Shelton, Mason County, Washington, currently owned and managed by the Mason Transit Authority. This report has been prepared in accordance with generally accepted environmental assessment methods and practices, as referred to in ASTM E1903-11 *Standard Practice for Environmental Site Assessments: Phase II ESA Process*. No other warranties, expressed or implied, are made concerning the professional services provided under the terms of our contract and included in this report.

This report has been prepared for the exclusive use of the client, the Mason Transit Authority, and its consultants. No reliance on this report and its findings may be assumed by any other third party person or entity without the expressed written consent of Materials Testing and Consulting, Inc. and the Mason Transit Authority.

Respectfully Submitted,
MATERIALS TESTING & CONSULTING, INC.

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9 Appendix

9.1 Summary Data Tables
- *TABLE 1*: Summary List of Environmental Samples
- *TABLE 2*: Results of NWTPH Analysis
- *TABLE 3*: Results of RCRA Metals Analysis
- *TABLE 4*: Results of TCLP Metals Analysis

9.2 Location Map & Aerial Photo Site Plan
9.3 Photographs of Samples & Site Conditions
9.4 Subsurface Exploration Logs
9.5 Analytical Laboratory Results & COCs

9.1 Data Tables

TABLE 1. Summary List of Environmental Samples & Analysis

Location	Depth (BPG, ft)	Soil Layer	Analysis	Sample Date
GP-1	0.8	Topsoil / Subsoil	RCRA Metals, NWTPH-Dx	10/19/2017
GP-1	2.3	Native - Silty Sand		10/19/2017
GP-2	1.5	Native - Silty Sand		10/19/2017
GP-2	5.5	Native - Sand / Gravel		10/19/2017
GP-3	2.8	Native - Silty Sand	RCRA Metals, NWTPH-Dx	10/19/2017
GP-3	5.0	Native - Sand / Gravel		10/19/2017
GP-4	3.5	Native - Silty Sand		10/19/2017
GP-4	6.5	Native - Sand / Gravel		10/19/2017
GP-5	1.8	Native - Silty Sand	RCRA Metals, NWTPH-Dx	10/19/2017
GP-5	4.0	Native - Sand / Gravel		10/19/2017
GP-6	2.3	Old Fill / Disturbed	RCRA Metals, NWTPH-Dx	10/19/2017
GP-6	6.5	Native - Sand / Gravel		10/19/2017
GP-7	3.3	Native - Silty Sand	RCRA Metals, NWTPH-Dx	10/19/2017
GP-7	7.0	Native - Sand / Gravel		10/19/2017
GP-8	0.6	Old Fill / Disturbed	RCRA Metals, NWTPH-Dx	10/19/2017
GP-8	2.3	Native - Silty Sand		10/19/2017
GP-9	0.5	Old Fill / Disturbed	RCRA Metals, NWTPH-Dx	10/19/2017
GP-9	4.5	Native - Silty Sand		10/19/2017
GP-10	1.3	Old Fill / Disturbed	RCRA Metals, NWTPH-Dx	10/19/2017
GP-10	4.0	Native - Silty Sand	RCRA Metals, NWTPH-Dx	10/19/2017
GP-11	1.0	Native - Silty Sand		10/19/2017
GP-11	9.0	Native - Sand / Gravel		10/19/2017
GP-12	1.4	Old Fill / Disturbed	RCRA Metals, NWTPH-Dx	10/19/2017
GP-12	4.0	Native - Silty Sand	RCRA Metals, NWTPH-Dx	10/19/2017
GP-13	1.3	Old Fill / Disturbed	RCRA Metals, NWTPH-Dx	10/19/2017
GP-13	4.5	Native - Sand / Gravel		10/19/2017
HA-1	0.5	Landscape Soil		10/19/2017
HA-1	1.5	Native - Silty Sand		10/19/2017
S1	Comp	Stock Mixture	TCLP Metals, NWTPH-Dx	10/17/2017
S2	Comp	Stock Mixture		10/17/2017
S3	Comp	Stock Mixture	TCLP Metals, NWTPH-Dx	10/17/2017
S4	Comp	Stock Mixture		10/17/2017
S5	Comp	Stock Mixture	TCLP Metals, NWTPH-Dx	10/17/2017
S6	Comp	Stock Mixture		10/17/2017

TABLE 2. Results of NWTPH Analysis

Location	Depth (BPG, ft)	Soil Layer	Analysis	Diesel C_{12}-C_{24} (mg/kg)	Oil >C_{24} (mg/kg)
GP-1	0.8	Topsoil / Subsoil	NWTPH-Dx	ND	ND
GP-3	2.8	Native - Silty Sand	NWTPH-Dx	ND	ND
GP-5	1.8	Native - Silty Sand	NWTPH-Dx	ND	ND
GP-6	2.3	Old Fill / Disturbed	NWTPH-Dx	ND	ND
GP-7	3.3	Native - Silty Sand	NWTPH-Dx	ND	ND
GP-8	0.6	Old Fill / Disturbed	NWTPH-Dx	ND	**160**
GP-9	0.5	Old Fill / Disturbed	NWTPH-Dx	ND	ND
GP-10	1.3	Old Fill / Disturbed	NWTPH-Dx	ND	ND
GP-10	4.0	Native - Silty Sand	NWTPH-Dx	ND	ND
GP-12	1.4	Old Fill / Disturbed	NWTPH-Dx	ND	ND
GP-12	4.0	Native - Silty Sand	NWTPH-Dx	ND	ND
GP-13	1.3	Old Fill / Disturbed	NWTPH-Dx	ND	ND
GP-13	1.3 dup	Old Fill / Disturbed	NWTPH-Dx	ND	ND
S1	C	Stock Mix	NWTPH-Dx	ND	**140**
S1	C dup	Stock Mix	NWTPH-Dx	ND	**170**
S3	C	Stock Mix	NWTPH-Dx	ND	ND
S5	C	Stock Mix	NWTPH-Dx	ND	ND
MTCA METHOD A CLEANUP STANDARDS				**2000**	**2000**
Laboratory Minimum Reporting Limit				50	100

All values presented in units of mg/kg (ppm).
ND = Not detected by laboratory Minimum Reporting Limit (MRL).

TABLE 3. Results of RCRA Metals (Total) Analysis

Location	Depth (BPG, ft)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
GP-1	0.8	ND	65	ND	63	10	ND	ND	ND
GP-1	0.8 dup	ND	54	ND	52	12	ND	ND	ND
GP-3	2.8	ND	53	ND	76	ND	ND	ND	ND
GP-5	1.8	ND	88	ND	83	11	ND	ND	ND
GP-6	2.3	ND	64	ND	54	32	ND	ND	ND
GP-7	3.3	ND	ND	ND	41	ND	ND	ND	ND
GP-8	0.6	ND	53	ND	46	**130**	ND	ND	ND
GP-9	0.5	ND	ND	ND	45	21	ND	ND	ND
GP-10	1.3	ND	93	ND	45	28	ND	ND	ND
GP-10	4.0	ND	37	ND	70	ND	ND	ND	ND
GP-12	1.4	ND	72	ND	48	**200**	ND	ND	ND
GP-12	4.0	ND	ND	ND	69	ND	ND	ND	ND
GP-13	1.3	ND	71	ND	89	**39**	ND	ND	ND
GP-13	1.3 dup	ND	70	ND	96	**60**	ND	ND	ND
Background Soil Concentration (90%)		7.3	255*	0.77	48.15	16.8	0.07	0.78*	0.61*
MTCA Method A Cleanup Standards		**20**	**^**	**2**	**2000 (III)**	**250**	**2**	**^**	**^**
Laboratory Minimum Reporting Limit		5	50	1	5	5	0.5	20	20

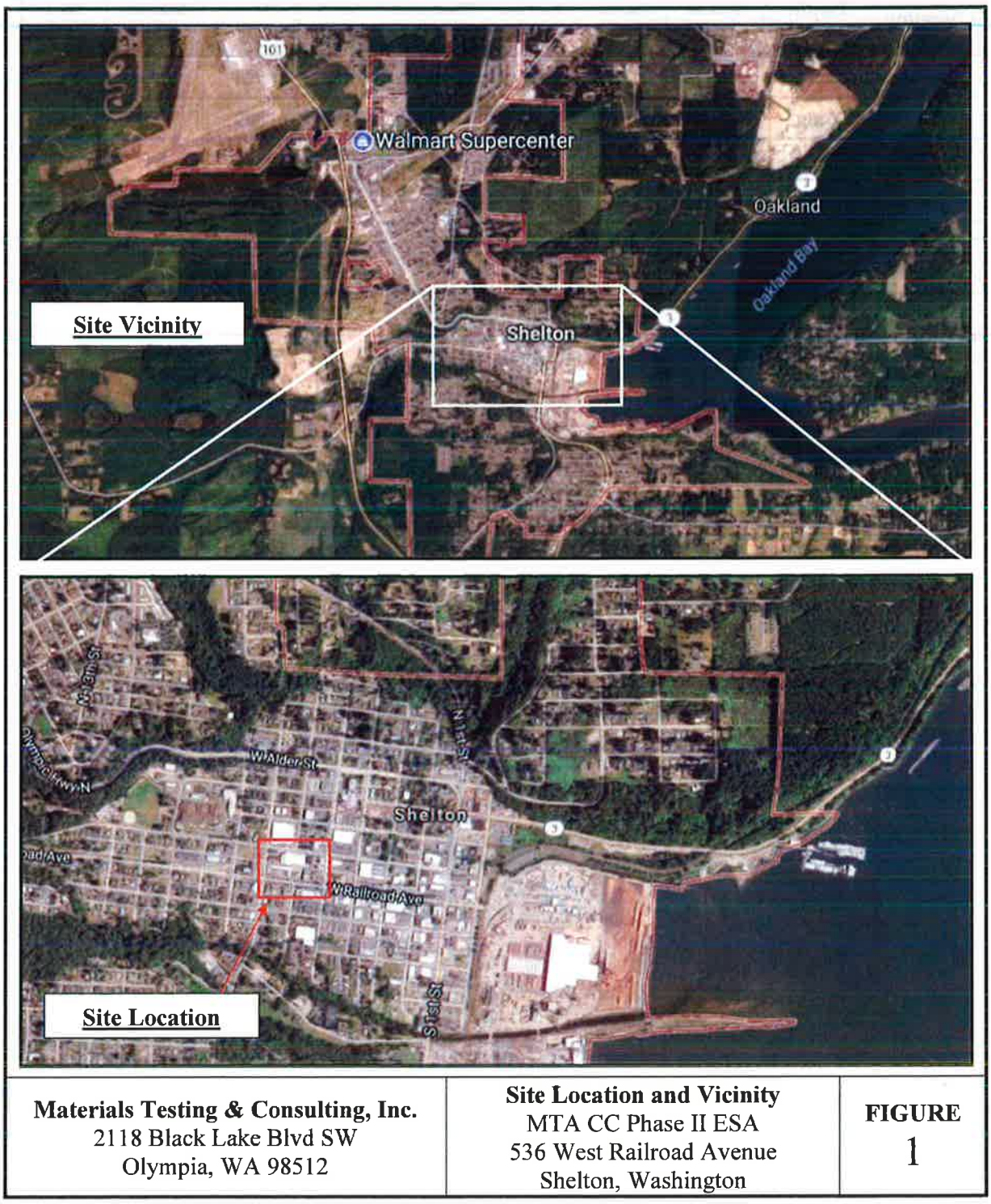
All values presented in units of mg/kg (ppm).
ND = Not detected by laboratory Minimum Reporting Limit (MRL).
* Statewide background concentrations directly from reference report. Not in current WA DoE published lists.
All other background concentrations (90th percentile) published by WA DoE.
^ Denotes metal does not have a Method A cleanup level per current MTCA standards.

TABLE 4. Results of Stockpile TCLP Metals Analysis

Location	Depth (BPG, ft)	Arsenic (mg/L)	Barium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silver (mg/L)
S1	C	ND	0.35	ND	ND	ND	ND	ND	ND
S1	C dup	ND	0.37	ND	ND	ND	ND	ND	ND
S3	C	ND	0.27	ND	ND	ND	ND	ND	ND
S5	C	ND	0.28	ND	ND	ND	ND	ND	ND
Laboratory Minimum Reporting Limit		0.2	0.2	0.2	0.2	0.2	0.05	0.2	0.2

All values presented in units of mg/L.
ND = Not detected by laboratory Minimum Reporting Limit (MRL).

9.2 Location Map & Site Plans



Materials Testing & Consulting, Inc. 2118 Black Lake Blvd SW Olympia, WA 98512	**Site Location and Vicinity** MTA CC Phase II ESA 536 West Railroad Avenue Shelton, Washington	**FIGURE** 1

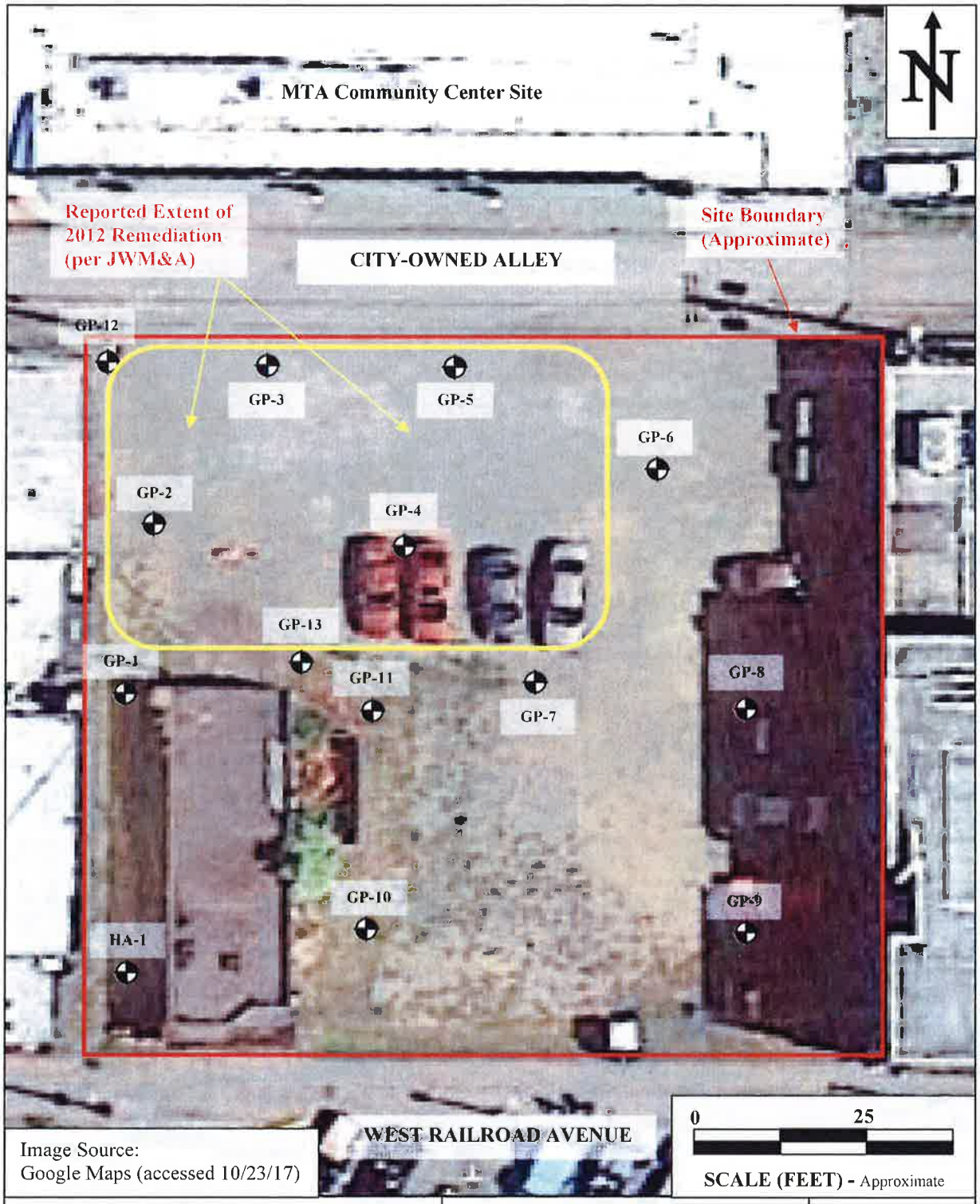


Image Source:
Google Maps (accessed 10/23/17)

Materials Testing & Consulting, Inc. 2118 Black Lake Blvd SW Olympia, WA 98512	**Site Plan with Test Locations** 536 West Railroad Avenue Shelton, Washington	**FIGURE** **2a**

Materials Testing & Consulting, Inc. 2118 Black Lake Blvd SW Olympia, WA 98512	**Site Plan with Detections** 536 West Railroad Avenue Shelton, Washington	**FIGURE** **2b**

9.3 Photographs of Samples & Site Conditions

Photo 1. Continuous sample from borehole GP-1. Lab samples taken at 0.8 feet and 2.3 feet.

Photo 2. Continuous sample from borehole GP-2. Lab samples taken at 1.5 feet and 5.5 feet.

Photo 3. Continuous sample from borehole GP-3. Lab samples taken at 2.8 feet and 5.0 feet.

Photo 4. Continuous sample from borehole GP-4. Lab samples taken at 3.5 feet and 6.5 feet.

Photo 5. Continuous sample from borehole GP-5. Lab samples taken at 1.8 feet and 4.0 feet.

Photo 6. Continuous sample from borehole GP-6. Lab samples taken at 2.3 feet and 6.5 feet.

Photo 7. Continuous sample from borehole GP-7. Lab samples taken at 3.3 feet and 7.0 feet.

Photo 8. Continuous sample from borehole GP-8. Lab samples taken at 0.6 feet and 2.3 feet.

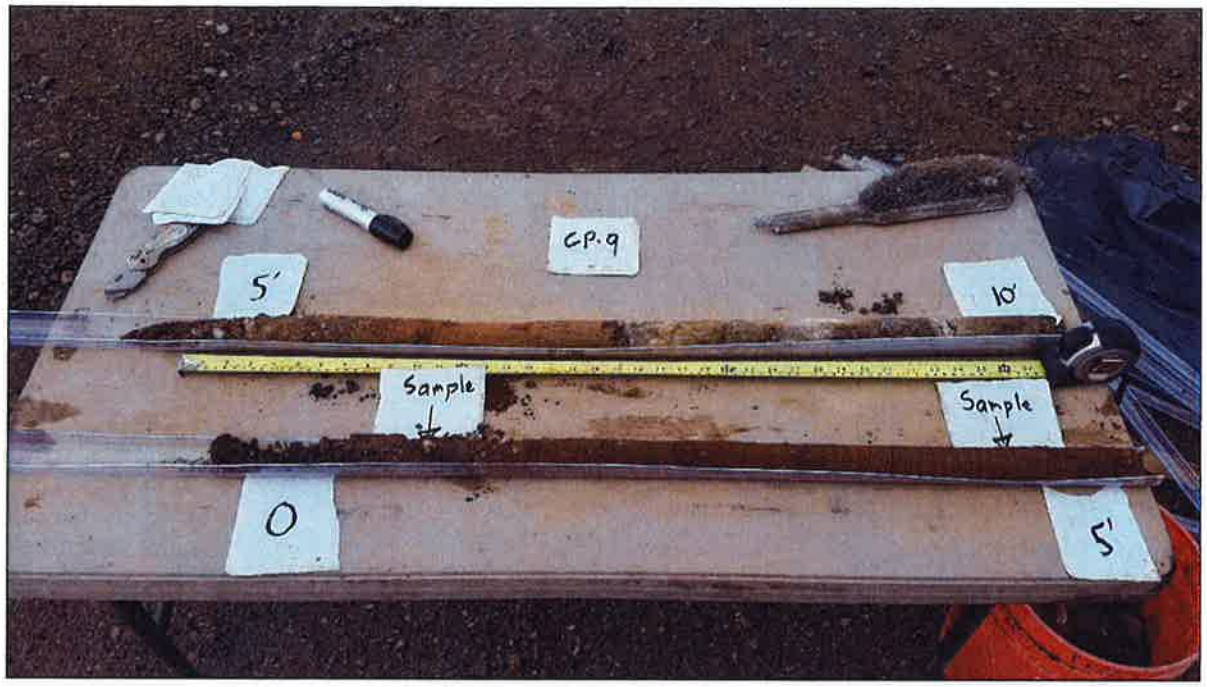


Photo 9. Continuous sample from borehole GP-9. Lab samples taken at 0.5 feet and 4.5 feet.

Photo 10. Continuous sample from borehole GP-10. Lab samples taken at 1.3 feet and 4.0 feet.

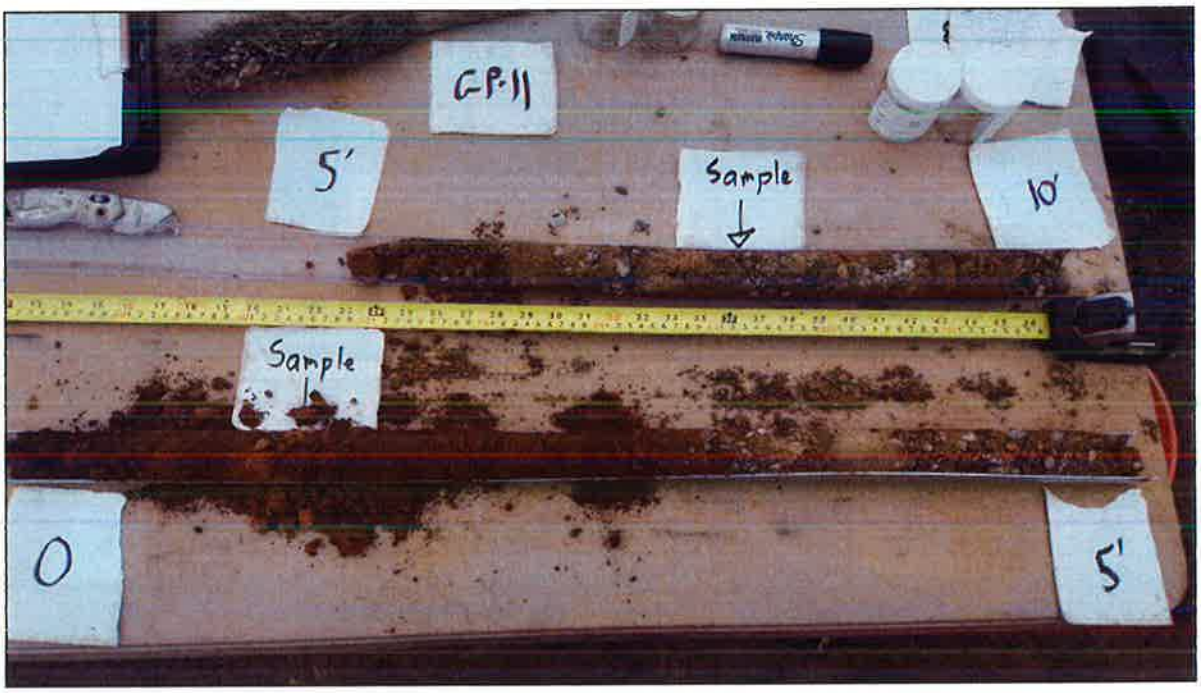


Photo 11. Continuous sample from borehole GP-11. Lab samples taken at 1.0 feet and 9.0 feet.

Photo 12. Continuous sample from borehole GP-12. Lab samples taken at 1.4 feet and 4.0 feet.

Photo 13. Continuous sample from borehole GP-13. Lab samples taken at 1.3 feet and 4.5 feet.

Photo 14. Lab samples were gathered directly to jars from 4" to 6" span within sample sleeves.

Photo 15. Sample sleeves were visually examined and soils logged prior to sample collection.

Photo 16. Borehole GP-4 location in progress. Existing site building to left. Looking West.

Photo 17. North and east portion site conditions at time of visit. Looking southeast from alley.

Photo 18. Southeast quadrant of site. West Railroad Avenue in background. Looking south.

Photo 19. Stockpile of exported soils stored off-site at Mason County gravel pit in separate area.

Photo 20. Close view of stockpile. Primarily crushed rock, sand and gravel in small piles.

9.4 Subsurface Exploration Logs

Unified Soil Classification System Chart

Major Divisions			Graph	USCS	Typical Description
Coarse Grained Soils More Than 50% Retained On No. 200 Sieve	**Gravel** More Than 50% of Coarse Fraction Retained On No. 4 Sieve	Clean Gravels		GW	Well-graded Gravels, Gravel-Sand Mixtures
				GP	Poorly-Graded Gravels, Gravel-Sand Mixtures
		Gravels With Fines		GM	Silty Gravels, Gravel-Sand-Silt Mixtures
				GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	Sand More Than 50% of Coarse Fraction Passing No. 4 Sieve	Clean Sands		SW	Well-graded Sands, Gravelly Sands
				SP	Poorly-Graded Sands, Gravelly Sands
		Sands With Fines		SM	Silty Sands, Sand-Silt Mixtures
				SC	Clayey Sands, Clay Mixtures
Fine Grained Soils More Than 50% Passing The No. 200 Sieve	**Silts & Clays**	Liquid Limit Less Than 50		ML	Inorganic Silts, rock Flour, Clayey Silts With Low Plasticity
				CL	Inorganic Clays of Low To Medium Plasticity
				OL	Organic Silts and Organic Silty Clays of Low Plasticity
	Silts & Clays	Liquid Limit Greater Than 50		MH	Inorganic Silts of Moderate Plasticity
				CH	Inorganic Clays of High Plasticity
				OH	Organic Clays And Silts of Medium to High Plasticity
Highly Organic Soils				PT	Peat, Humus, Soils with Predominantly Organic Content

Sampler Symbol Description

- Standard Penetration Test (SPT)
- Shelby Tube
- Grab or Bulk
- California (3.0" O.D.)
- Modified California (2.5" O.D.)

Stratigraphic Contact

- Distinct Stratigraphic Contact Between Soil Strata
- Gradual Change Between Soil Strata
- Approximate location of stratagraphic change

- Groundwater observed at time of exploration
- Measured groundwater level in exploration, well, or piezometer
- Perched water observed at time of exploration

Modifiers

Description	%
Trace	>5
Some	5-12
With	>12

Soil Consistency

Granular Soils		Fine-grained Soils	
Density	***SPT Blowcount***	***Consistency***	***SPT Blowcount***
Very Loose	0-4	Very Soft	0-2
Loose	4-10	Soft	2-4
Medium Dense	10-30	Firm	4-8
Dense	30-50	Stiff	8-15
Very Dense	> 50	Very Stiff	15-30
		Hard	> 30

Grain Size

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		> 12"	> 12"	Larger than a basketball
Cobbles		3 - 12"	3 - 12"	Fist to basketball
Gravel	Coarse	3/4 - 3"	3/4 - 3"	Thumb to fist
	Fine	#4 - 3/4"	0.19 - 0.75"	Pea to thumb
Sand	Coarse	#10 - #4	0.079 - 0.19"	Rock salt to pea
	Medium	#40 - #10	0.017 - 0.079"	Sugar to rock salt
	Fine	#200 - #40	0.0029 - 0.017"	Flour to Sugar
Fines		Passing #200	< 0.0029"	Flour and smaller

Materials Testing & Consulting, Inc. 2118 Black Lake Blvd SW Olympia, WA 98512	**Exploration Log Key** MTA CC Phase II ESA 536 West Railroad Avenue Shelton, Washington	**FIGURE** **3**

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777 Chrysler Drive, Burlington, WA
GEOTECHNICAL SERVICES

Log of Geoprobe GP-1

(Page 1 of 1)

MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 53.0' N 108.0' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	OL-ML		SANDY SILT, soft, moist, minor gravel, high organic content. DARK BROWN. (Topsoil)					
			SANDY SILT to SILTY SAND, fine-grained sand, loose/medium stiff, moist, minor organics. Medium to light REDDISH BROWN.		X	nd	10	GP-1 @ 0.8' (NWTPH-DX) (RCRA Metals)
	ML-SM				X			GP-1 @ 2.3'
	SM		SILTY SAND WITH GRAVEL, medium-grained sand, loose to medium dense, damp. Medium BROWN with rust mottling.					
5	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Light GRAY-BROWN with faint mottling.					
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-2

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started	: 10/19/2017
Date Completed	: 10/19/2017
Sampling Method	: Geoprobe: Continuous sampling, 5' sleeves
Location	: 75.0' N 104.0' W of SE Corner
Logged By	: JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW		GRAVEL WITH SAND, crushed, minor fines, medium dense, damp. Medium GRAY. **IMPORTED GRAVEL FILL**					
	SM		SILTY SAND, fine-grained sand, loose, damp to moist. Medium REDDISH BROWN with mottling.		X			GP-2 @ 1.5'
			Coarsens with depth. Becomes light BROWN to TAN with mottling.					
5	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Light GRAY-BROWN with moderate mottling.		X			GP-2 @ 5.5'
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-3

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 98.0' N 96.0' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW		GRAVEL WITH SAND, crushed, minor fines, medium dense, dry to damp. Medium GRAY. **IMPORTED GRAVEL FILL**					
	SM		SILTY SAND, fine-grained sand, loose, damp to moist. Medium REDDISH BROWN to TAN with mottling.		X	nd	nd	GP-3 @ 2.8' (NWTPH-DX) (RCRA Metals)
5	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Light GRAY-BROWN with moderate mottling.		X			GP-3 @ 5.0'
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-4

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started	: 10/19/2017
Date Completed	: 10/19/2017
Sampling Method	: Geoprobe: Continuous sampling, 5' sleeves
Location	: 71.0' N 65.0' W of SE Corner
Logged By	: JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW		GRAVEL WITH SAND, crushed, minor fines, medium dense, dry to damp. Medium GRAY. **IMPORTED GRAVEL FILL**					
	SM		SILTY SAND, fine-grained sand, loose, moist to wet. Medium REDDISH BROWN with mottling.		X			GP-4 @ 3.5'
5	GM		SILTY GRAVEL WITH SAND, medium dense, moist to wet. Light GRAY-BROWN with light to moderate mottling. Heavy mottling 7.0 to 8.0 feet		X			GP-4 @ 6.5'
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-5

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 96.0' N 63.0' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW		GRAVEL WITH SAND, crushed, minor fines, medium dense, dry to damp. Medium GRAY. **IMPORTED GRAVEL FILL**					
	ML-SM		SANDY SILT to SILTY SAND, fine-grained sand, loose/medium stiff, moist. Medium REDDISH BROWN		X	nd	11	GP-5 @ 1.8' (NWTPH-DX) (RCRA Metals)
			Becomes light BROWN to TAN with moderate mottling. Increasing coarse content with depth.					
	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Medium to light GRAY-BROWN with moderate mottling.		X			GP-5 @ 4.0'
5			Coarse SAND lens from 8.0 to 9.0 feet.					
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-6

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 86.0' N 32.5' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW		GRAVEL WITH SAND, crushed, minor fines, medium dense, dry to damp. Medium GRAY. **IMPORTED GRAVEL FILL**					
	ML		SILT, some sand, moist, medium stiff. Dark BROWN to BLACK. **HISTORIC FILL / DISTURBED HORIZON**		X	nd	32	GP-6 @ 2.3' (NWTPH-DX) (RCRA Metals)
	ML-SM		SANDY SILT to SILTY SAND, fine-grained sand, loose/medium stiff, moist, minor organics, some gravel. Medium REDDISH BROWN with mottling.					
5	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Medium GRAY-BROWN with moderate mottling.		X			GP-6 @ 6.5'
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-7

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536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 54.0' N 49.5' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW		GRAVEL WITH SAND, crushed, minor fines, medium dense, dry to damp. Medium GRAY. **IMPORTED GRAVEL FILL**					
	SM		SILTY SAND, fine-grained sand, loose, moist. Medium REDDISH BROWN to light BROWN with moderate mottling.		X	nd	nd	GP-7 @ 3.3' (NWTPH-DX) (RCRA Metals)
5	GM-SM		SILTY GRAVEL WITH SAND to SAND WITH GRAVEL, medium dense, moist. Medium to light GRAY-BROWN with moderate mottling.		X			GP-7 @ 7.0'
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-8

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 49.0' N 18.5' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	SM-GM		SILT-SAND-GRAVEL Mixture, loose/medium stiff, damp to moist. Dark BROWN to BLACK. Highly variable content. **HISTORIC FILL / DISTURBED MIXTURE**		X	160	130	GP-8 @ 0.6' (NWTPH-DX) (RCRA Metals)
	ML-SM		SANDY SILT to SILTY SAND, fine-grained sand, loose/medium stiff, moist, minor organics. Medium REDDISH BROWN with mottling.		X			GP-8 @ 2.3'
5	SM		SILTY SAND, fine- to medium-grained sand, loose, moist, minor gravel. Light BROWN with moderate mottling.					
	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Medium GRAY-BROWN with moderate mottling.					
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-9

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 17.5' N 22.5' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	SM-ML		SILT-SAND Mixture, some gravel, loose/medium stiff, damp to moist, some organics. Dark BROWN. Highly variable content. **HISTORIC FILL / DISTURBED MIXTURE**		X	nd	21	GP-9 @ 0.5' (NWTPH-DX) (RCRA Metals)
	ML-SM		SANDY SILT to SILTY SAND, fine-grained sand, loose/medium stiff, moist, minor organics. Medium REDDISH BROWN with mottling.		X			GP-9 @ 4.5'
5	SM		SILTY SAND, fine- to medium-grained sand, loose, moist, minor to some gravel. Light BROWN with moderate to heavy mottling.					
	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Medium GRAY-BROWN with moderate mottling.					
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-10

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 17.0' N 73.0' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW-GM		GRAVEL WITH SAND, some fines, medium dense, dry to damp. Medium BROWN. **IMPORTED GRAVEL FILL**					
	GM-SM		SILT-SAND-GRAVEL Mixture, loose/medium stiff, damp to moist. Dark BROWN to medium REDDISH BROWN. Highly variable content. **HISTORIC FILL / DISTURBED MIXTURE**		X	nd	28	GP-10 @ 1.3' (NWTPH-DX) (RCRA Metals)
	SM		SILTY SAND, fine-grained sand, loose, damp to moist, minor gravel. Medium REDDISH BROWN to TAN with moderate mottling.		X	nd	nd	GP-10 @ 4.0' (NWTPH-DX) (RCRA Metals)
5	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Medium GRAY-BROWN with moderate mottling.					
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-11

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 48.0' N 72.5' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GM-SM		SILT-SAND-GRAVEL Mixture, loose, damp. Dark BROWN. **HISTORIC FILL / DISTURBED MIXTURE**					
	SM		SILTY SAND, fine-grained sand, loose, damp to moist, minor gravel. Medium REDDISH BROWN to TAN with moderate to heavy mottling.		X			GP-11 @ 1.0'
5	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Medium GRAY-BROWN with moderate mottling.		X			GP-11 @ 9.0'
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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GEOTECHNICAL SERVICES

Log of Geoprobe GP-12

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 97.0' N 119.0' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW		GRAVEL WITH SAND, crushed, minor fines, medium dense, damp. Medium GRAY. **IMPORTED GRAVEL FILL**					
	ML-SM		SILT-SAND Mixture, moist, medium stiff. Dark BROWN to BLACK. **HISTORIC FILL / DISTURBED HORIZON**		X	nd	200	GP-12 @ 1.4' (NWTPH-DX) (RCRA Metals)
	SM		SILTY SAND, fine-grained sand, loose, damp to moist, minor gravel. Medium REDDISH BROWN to TAN with moderate mottling.					
5	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Medium GRAY-BROWN with moderate mottling.		X	nd	nd	GP-12 @ 4.0' (NWTPH-DX) (RCRA Metals)
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Geoprobe GP-13

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 58.0' N 85.5' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GW		GRAVEL WITH SAND, some fines, medium dense, dry to damp. Medium BROWN. **IMPORTED GRAVEL FILL**					
	SM-ML		SILT-SAND-GRAVEL Mixture, loose/medium stiff, damp to moist. Dark BROWN to medium REDDISH BROWN. Highly variable content. **HISTORIC FILL / DISTURBED MIXTURE**		X	nd	39	GP-13 @ 1.3' (NWTPH-DX) (RCRA Metals)
	ML-SM		SANDY SILT to SILTY SAND, fine-grained sand, loose/medium stiff, moist. Medium REDDISH BROWN to light BROWN with mottling. Increased sand content, heavy mottling.					
5	GM		SILTY GRAVEL WITH SAND, medium dense, damp. Medium GRAY-BROWN with moderate mottling.		X			GP-13 @ 4.5'
10			TD 10.0' Boring terminated at contract depth. No free water encountered.					

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Log of Hand Auger HA-1

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MTA Community Center - Phase 2 ESA
536 West Railroad Avenue
Shelton, Washington

MTC Project No. 17S182

Date Started : 10/19/2017
Date Completed : 10/19/2017
Sampling Method : Geoprobe: Continuous sampling, 5' sleeves
Location : 12.0' N 108.0' W of SE Corner
Logged By : JG / KH

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Water Level	Lab Sample	Oil Range HC (ppm)	Lead (ppm)	Lab ID
0	GM		GRAVEL WITH SAND, crushed, minor fines, medium dense, damp. Medium GRAY. **IMPORTED GRAVEL FILL**					
1	SM		SILTY SAND WITH GRAVEL, loose, damp. Medium to light REDDISH BROWN, light mottling.		X			HA-1 @ 0.5'
2					X			HA-1 @ 1.5'
			TD 2.0' Boring terminated due to difficult advancement. No free water encountered.					
3								
4								
5								
6								

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9.5 Analytical Laboratory Reports & COCs

ESN NORTHWEST, INC. | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: MTC
ADDRESS: ~~3605349777~~
PHONE: 3605349777 FAX:
CLIENT PROJECT #: 175182 PROJECT MANAGER: J G

DATE: 10/19/17 PAGE 1 OF 2
PROJECT NAME: MTA CC
LOCATION: Parking
COLLECTOR: LM DATE OF COLLECTION: 10/19

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. GP-1@0.8'	0.8'	9:40	S-Grab	4oz Jar		X								X									2	
2. GP-1@2.3'	2.3'	9:40																				Hold	1	
3. GP-2@1.5'	1.5'	9:55																				Hold		
4. GP-2@5.5'	5.5'	9:55																				Hold		
5. GP-3@2.8'	2.8'	10:15				X								X										
6. GP-3@5.0'	5.0'	10:15																				Hold		
7. GP-4@3.5'	3.5'	10:30																				Hold		
8. GP-4@4.0'	4.0'	10:30																				Hold		
9. GP-5@1.8'	1.8'	10:41				X								X										
10. GP-5@4.0'	4.0'	10:41																				Hold		
11. GP-6@2.3'	2.3'	11:00				X								X										
12. GP-6@6.5'	6.5'	11:00																				Hold		
13. GP-7@3.3'	3.3'	11:10				X								X										
14. GP-7@7.0'	7.0'	11:10																				Hold		
15. GP-8@0.6'	0.6'	11:20				X								X										
16. GP-8@2.3'	2.3'	11:20																				Hold		
17. GP-9@0.5'	0.5'	11:40	↓	↓		X								X									↓	
18. GP-9@4.5'	4.5'	11:40																				Hold		

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[signature]	10/19/17	[signature]	10/19/17 3:20 PM
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

1210 Eastside Street SE, Suite 200
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ESN NORTHWEST, INC. Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: MTC
ADDRESS: 2118 Black Lake Blvd SW, Olympia, WA 98512
PHONE: 360 534 9777 FAX:
CLIENT PROJECT #: 175182 PROJECT MANAGER: JG

DATE: 10/19/17 PAGE 2 OF 2
PROJECT NAME: MTA CC
LOCATION: Parking
COLLECTOR: LM DATE OF COLLECTION: 10/19

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. GP-10@1.3'	1.3'	11:50	S-Grab	4oz Jar		X								X									2	
2. GP-10@4.0'	4.0'	11:50				X								X									1	
3. GP-11@1.0'	1.0'	12:00																				Hold		
4. GP-11@9.0'	9.0'	13:00																				Hold		
5. GP-12@1.4'	1.4'	12:20				X								X										
6. GP-12@4.0'	4.0'	12:20				X								X										
7. GP-13@1.3'	1.3'	12:35				X								X										
8. GP-13@4.5'	4.5'	12:35																				Hold		
9. HA-1@0.5'	0.5'	13:00																				Hold		
10. HA-1@1.5'	1.5'	13:00	↓	↓																		Hold	↓	
11.																								
12.																								
13.																								
14.																								
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	10/19/17	[signature]	10/19/17 3:20pm
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

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ESN NORTHWEST CHEMISTRY LABORATORY

Material Testing, Co.
PROJECT MTA CC
PROJECT #175182
Shelton, Washington

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Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	10/24/2017	10/24/2017	110	nd	nd
LCS	10/24/2017	10/24/2017	111	114%	---
GP-1@0.8'	10/24/2017	10/24/2017	111	nd	nd
GP-3@2.8'	10/24/2017	10/24/2017	98	nd	nd
GP-5@1.8'	10/24/2017	10/24/2017	109	nd	nd
GP-6@2.3'	10/24/2017	10/25/2017	110	nd	nd
GP-7@3.3'	10/24/2017	10/25/2017	104	nd	nd
GP-8@0.6'	10/24/2017	10/25/2017	116	nd	**160**
GP-9@0.5'	10/24/2017	10/25/2017	106	nd	nd
GP-10@1.3'	10/24/2017	10/25/2017	93	nd	nd
GP-10@4.0'	10/24/2017	10/25/2017	121	nd	nd
GP-12@1.4'	10/24/2017	10/25/2017	96	nd	nd
GP-12@4.0'	10/24/2017	10/25/2017	100	nd	nd
GP-13@1.3'	10/24/2017	10/25/2017	102	nd	nd
GP-13@1.3' Duplicate	10/24/2017	10/25/2017	98	nd	nd
Reporting Limits				50	100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

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Total Metals in Soil by EPA-6020 Series

Sample Number	Date Analyzed	Lead (Pb) (mg/kg)	Cadmium (Cd) (mg/kg)	Chromium (Cr) (mg/kg)	Arsenic (As) (mg/kg)	Silver (Ag) (mg/kg)	Barium (Ba) (mg/kg)	Selenium (Se) (mg/kg)	Mercury (Hg) (mg/kg)
Method Blank	10/25/2017	nd	nd	nd	nd	nd	nd	nd	nd
GP-1@0.8'	10/25/2017	10	nd	63	nd	nd	65	nd	nd
GP-1@0.8' Duplicate	10/25/2017	12	nd	52	nd	nd	54	nd	nd
GP-3@2.8'	10/25/2017	nd	nd	76	nd	nd	53	nd	nd
GP-5@1.8'	10/25/2017	11	nd	83	nd	nd	88	nd	nd
GP-6@2.3'	10/25/2017	32	nd	54	nd	nd	64	nd	nd
GP-7@3.3'	10/25/2017	nd	nd	41	nd	nd	nd	nd	nd
GP-8@0.6'	10/25/2017	130	nd	46	nd	nd	53	nd	nd
GP-9@0.5'	10/25/2017	21	nd	45	nd	nd	nd	nd	nd
GP-10@1.3'	10/25/2017	28	nd	45	nd	nd	93	nd	nd
GP-10@4.0'	10/25/2017	nd	nd	70	nd	nd	37	nd	nd
GP-12@1.4'	10/25/2017	200	nd	48	nd	nd	72	nd	nd
GP-12@4.0'	10/25/2017	nd	nd	69	nd	nd	nd	nd	nd
GP-13@1.3'	10/25/2017	39	nd	89	nd	nd	71	nd	nd
GP-13@1.3' Duplicate	10/25/2017	60	nd	96	nd	nd	70	nd	nd
Reporting Limits		5.0	1.0	5.0	5.0	20	50	20	0.5

"nd" Indicates not detected at listed detection limits.

ESN NORTHWEST CHEMISTRY LABORATORY

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QA/QC Data - Total Metals EPA-6020

Sample Number: QC Batch

	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead	85.5	70.7	82.7	81.0	65.6	81.0	2.1
Cadmium	85.5	74.6	87.3	81.0	72.9	90.0	3.1
Chromium	85.5	78.8	92.2	81.0	72.8	89.9	2.5
Arsenic	85.5	85.0	99.4	81.0	81.9	101	1.7
Silver	85.5	75.8	88.7	81.0	74.8	92.3	4.1
Barium	85.5	89.1	104	81.0	83.3	103	1.3
Selenium	85.5	80.8	94.5	81.0	78.4	96.8	2.4
Mercury	8.55	5.94	69.5M	8.10	6.00	74.1M	6.4

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead	100	100	100
Cadmium	100	97.4	97.4
Chromium	100	110	110
Arsenic	100	87.8	87.8
Silver	100	96.3	96.3
Barium	100	104	104
Selenium	100	86.4	86.4
Mercury	10.0	9.99	99.9

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
M - Matrix Spike recovery failed due to matrix interference.

ESN NORTHWEST, INC. | Environmental Services Network

Luke.McCann@MTC-inc.net

CHAIN-OF-CUSTODY RECORD

CLIENT: MTC
ADDRESS: 2118 Black Lake Blvd SW, Olympia, WA 98512
PHONE: 360-534-9777 FAX: 360-534-9779
CLIENT PROJECT #: 175182 PROJECT MANAGER: JG

DATE: 10/17/17 PAGE 1 OF 1
PROJECT NAME: MTA CC Sampling
LOCATION: Stock Pile, MP-3
COLLECTOR: LM DATE OF COLLECTION: 10/17/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. S1	12"	10:30	Bulk	Jar		X								X								Dx, RCRA TCLP	2	
2. S2	12"	↓	↓	↓										X								Hold	2	
3. S3	12"					X								X								Dx, RCRA TCLP	2	
4. S4	12"																					Hold	2	
5. S5	12"					X								X								Dx, RCRA TCLP	2	
6. S6	12"	↓	↓	↓																		Hold	2	
7.																								
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LM	10/17/17	Jenod Amod	10-17-17
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

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Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	10/18/2017	10/18/2017	73	nd	nd
LCS	10/18/2017	10/18/2017	78	83%	---
S1	10/18/2017	10/18/2017	95	nd	**140**
S1 Duplicate	10/18/2017	10/18/2017	94	nd	**170**
S3	10/18/2017	10/18/2017	92	nd	nd
S5	10/18/2017	10/18/2017	105	nd	nd
Reporting Limits				50	100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

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PROJECT #175182
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TCLP Metals in Soil by EPA-Method 1311/6020

Sample Number	Date Analyzed	Lead (Pb) (mg/L)	Cadmium (Cd) (mg/L)	Chromium (Cr) (mg/L)	Arsenic (As) (mg/L)	Silver (Ag) (mg/L)	Barium (Ba) (mg/L)	Selenium (Se) (mg/L)	Mercury (Hg) (mg/L)
Method Blank	10/25/2017	nd	nd	nd	nd	nd	nd	nd	nd
S1	10/25/2017	nd	nd	nd	nd	nd	**0.35**	nd	nd
S1-Duplicate	10/25/2017	nd	nd	nd	nd	nd	**0.37**	nd	nd
S3	10/25/2017	nd	nd	nd	nd	nd	**0.27**	nd	nd
S5	10/25/2017	nd	nd	nd	nd	nd	**0.28**	nd	nd
Method Detection Limits		0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.05

QA/QC Data - TCLP Metals EPA-Method 1311/6020

Sample Number:	Date Analyzed	Lead (Pb) (mg/L)	Cadmium (Cd) (mg/L)	Chromium (Cr) (mg/L)	Arsenic (As) (mg/L)	Silver (Ag) (mg/L)	Barium (Ba) (mg/L)	Selenium (Se) (mg/L)	Mercury (Hg) (mg/L)
Matrix Spike Level		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.100
Sample + Matrix Spike	10/24/2017	0.87	0.97	0.80	1.00	0.97	0.97	1.08	0.114
Percent Recovery (%)		87	97	80	100	97	97	108	114
Method Detection Limits			0.20	0.20	0.20	0.20	0.20	0.20	0.05

"nd" Indicates not detected at listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%
ACCEPTABLE RPD IS 20%

Sample Preparation Information for Toxicity Characteristic Leaching Procedure (TCLP) by EPA Method 1311

Sample Number:	S1
No. of Extractions:	1
Type of Extraction:	Rotary
Extraction Fluid:	1
Date Extracted:	10/23/2017

Sample Number:	S1-Duplicate
No. of Extractions:	1
Type of Extraction:	Rotary
Extraction Fluid:	1
Date Extracted:	10/23/2017

Sample Number:	S3
No. of Extractions:	1
Type of Extraction:	Rotary
Extraction Fluid:	1
Date Extracted:	10/23/2017